



Sustainability Report 2018



Acknowledging Aboriginal culture and heritage – our commitment

Sydney Metro acknowledges the importance of understanding cultural perspectives, and collaborating with and providing opportunities for Aboriginal People as part of project delivery.

Sydney Metro acknowledge the land and waterways which are strongly interwoven into the culture of Aboriginal people. We are committed to the conservation of these histories and using finds and relationships to strengthen our common understanding of what it means to be Australian.

This commitment is exemplified by the comprehensive Aboriginal archaeological programs undertaken on the Sydney Metro Northwest project, and the engagement with registered Aboriginal parties from early on in project development across the program of works. Early engagement enables Sydney Metro to acknowledge the traditional custodians of the land and ensure they are involved in project development.

The artefacts discovered to date provide a physical link and engagement with registered Aboriginal parties and help provide a cultural connection, to Country and the Aboriginal communities local to the area. This has enabled Sydney Metro to communicate Aboriginal cultural knowledge for future generations.

Sydney Metro's commitment to Indigenous inclusion is further realised through the targeted workforce development programs aimed at increasing Aboriginal participation in the workforce, and enhancing opportunities for Aboriginal businesses throughout the supply chain.

Having a targeted and focused approach to Aboriginal participation will result in a lasting legacy of more skills for individuals, and greater capability and capacity for Aboriginal People to respond to emerging opportunities.



Acknowledgement of Country

Sydney Metro recognises that the land and waterways are strongly interwoven into the culture of Aboriginal people. We would like to acknowledge the ancestors and spirits of this great land and pay our respect to the Elders past and present. We acknowledge the Aboriginal people as the Traditional Custodians of this land and extend this respect to all Aboriginal and Torres Strait islander peoples.

Table of contents

Acknowledgement of Country	3
1. About this report	5
2. Foreword from the Chief Executive	6
3. Executive Summary	7
4. Sustainability Highlights	8
5. About Sydney Metro	10
6. Our commitment to customers and the community	20
7. Environmental sustainability	34
8. Our commitment to the workforce	42
9. Looking ahead	52
Appendix A: Global Reporting Initiative (GRI) Standard Content Index	54
Appendix B: URL index	58

1. About this report

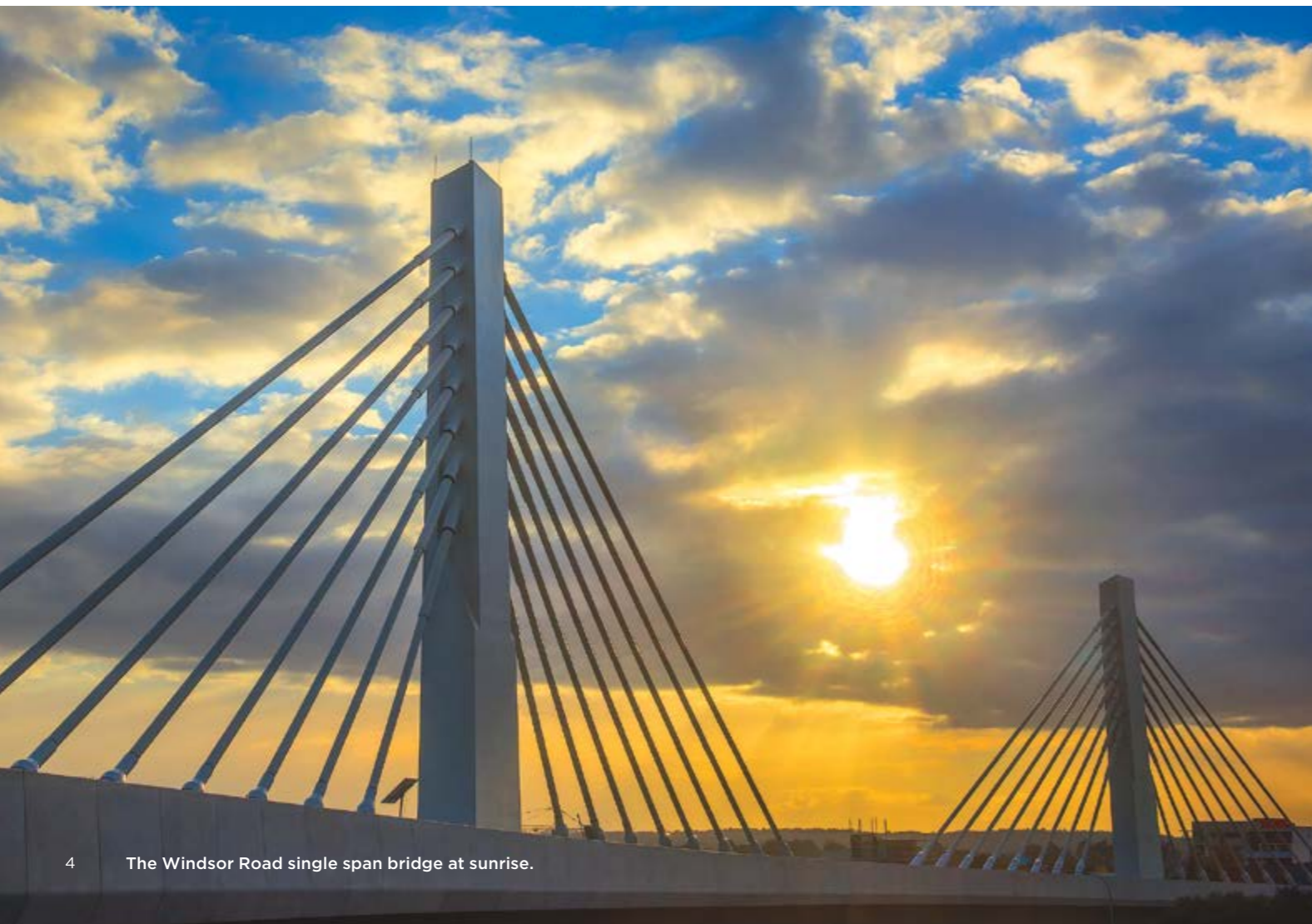
The Sydney Metro Sustainability Report 2018 outlines our environmental and socio-economic performance for the 2018 financial year (FY18), from 1 July 2017 to 30 June 2018. The report demonstrates how environmental and socio-economic requirements and initiatives are helping to shape the successful delivery of the Sydney Metro program of works.

This report builds on the performance data of the **Sustainability Report 2017**, and details the environmental and socio-economic performance of the Sydney Metro projects against set sustainability targets and objectives. The report includes case studies highlighting key initiatives. It includes information about how Sydney Metro is minimising impact on customers, community and the environment, while delivering social benefits. The report captures outcomes and initiatives from Sydney Metro Northwest and Sydney Metro City & Southwest, which are both currently under construction.

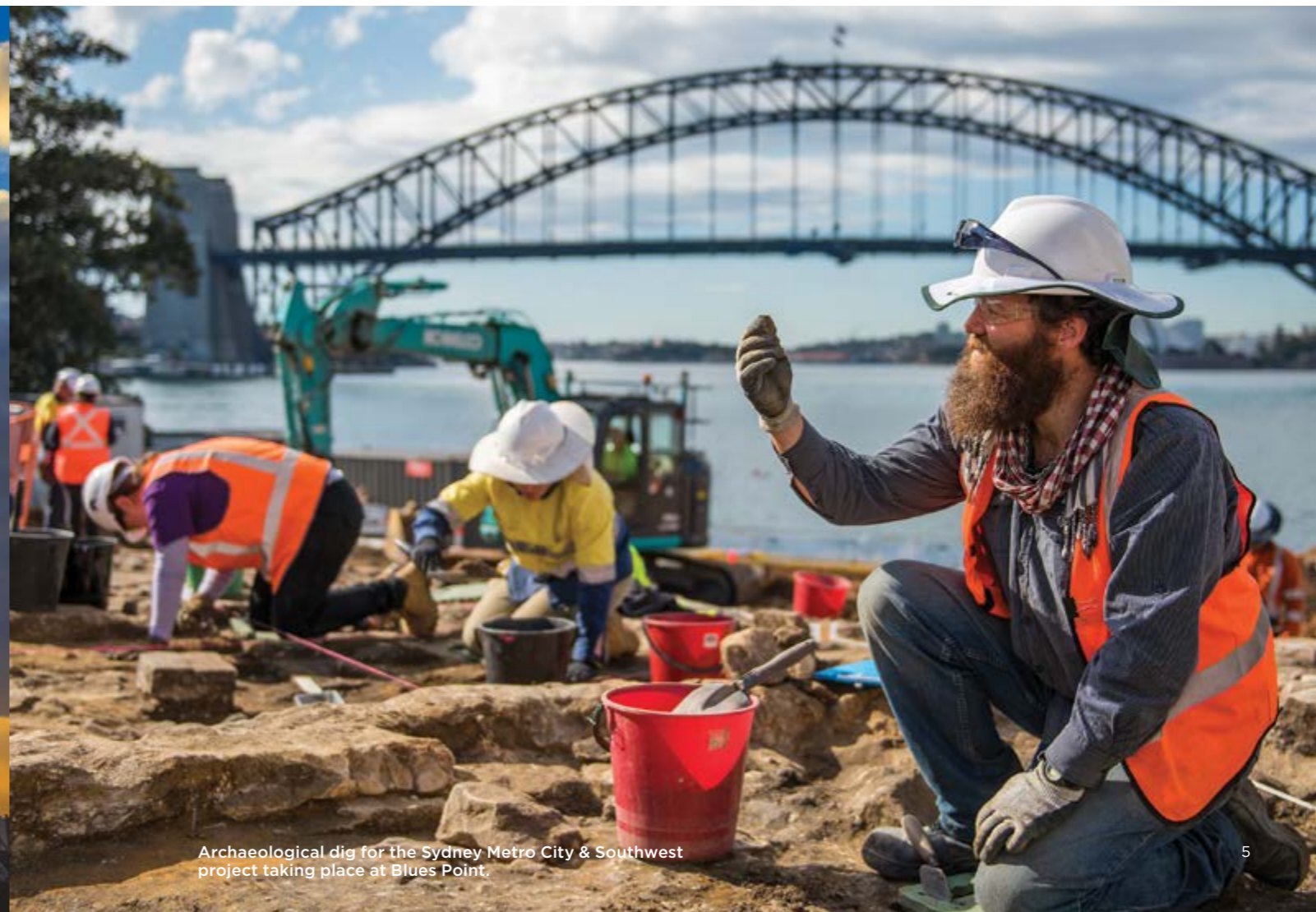
All sustainability metrics reported are for the period from 1 July 2017 to 30 June 2018, unless otherwise stated. For organisational information refer to the Transport for NSW Annual Report 2017-18.

The Global Reporting Initiative (GRI) Standards³ are widely used across government and all industry sectors nationally and internationally. GRI has been used as a guidance tool in developing this report, and this report is Sydney Metro's first step towards GRI, and aligning to international best practice reporting. The following aspects within the GRI framework were identified as the most relevant for Sydney Metro to focus on for this report:

- customer health and safety
- occupational health and safety
- engagement with local communities
- environmental compliance, and air emissions.



4 The Windsor Road single span bridge at sunrise.



5 Archaeological dig for the Sydney Metro City & Southwest project taking place at Blues Point.



2. Foreword from the Chief Executive

Sydney Metro will revolutionise how we get around our great city for generations to come. From the second quarter of 2019, this world-class mass transit system will help Sydney become a more liveable city. The journey in delivering Sydney Metro has been rigorously planned, reviewed and adjusted to get the best outcomes for our customers and our communities.

From day one in 2011, delivering a sustainable new railway for Australia's biggest city has been at the heart of Sydney Metro. We've worked together with the community to shape the project; indeed community feedback has helped refine and define it, delivering better outcomes and better benefits. Through careful planning we have made – and are still making – choices that set new benchmarks for the delivery of sustainable infrastructure.

Our approach to social and economic sustainability is an important factor to shape Sydney Metro's legacy. We are supporting people seeking training and jobs. We are supporting communities and people from varied backgrounds, and we are successfully improving the quality of life for many people.

With this in mind, Sydney Metro is taking an active step towards building more resilient and responsible infrastructure. One hundred per cent of operational electricity emissions on Sydney Metro Northwest will be offset through a Green Power Purchase Agreement from day one of operations, leaving a lasting legacy for future generations and leading the way in international best practice.

We are also proud that the people of New South Wales will get to enjoy the practical benefits of a transport system that places a high priority on conserving the environment for ourselves and for future generations.

Sustainability forms an integral part of Sydney Metro's vision – to transform Sydney with a world class metro. Sydney Metro benchmarks against international best practice, and we are leading the way in Australia – shaping sustainability in the transport sector not only within government but wider industry. Given the size and scale of our program of works, we recognise our ability to influence industry, and set new benchmarks and standards in environmental and socio-economic spheres.

Welcome aboard the largest urban rail infrastructure investment in Australian history.



Jon Lamonte
Chief Executive
Sydney Metro

3. Executive summary

Sydney Metro is a new world-class railway for Sydney.

Services start in the city's north west in the second quarter of 2019. From the north west, metro rail is being extended under Sydney Harbour, through new underground city stations and beyond to the south west. In 2024, Sydney will have 31 metro railway stations and a 66 kilometre standalone metro railway system. There will be capacity for a metro train every two minutes in each direction under the Sydney city centre.

Sydney Metro West will service the key precincts of Greater Parramatta, Sydney Olympic Park, The Bays Precinct and the Sydney central business district (CBD). A new metro railway servicing the new Western Sydney Airport will be developed and delivered by Sydney Metro. It will become the spine of the region's growth for generations to come, connecting communities and travellers. The Sydney Metro Western Sydney Airport project is a key part of delivering an integrated transport.

This is Sydney Metro's second sustainability report and focuses on the two projects that are currently under construction: Sydney Metro Northwest, and Sydney Metro City & Southwest. It highlights the sustainability performance of the two projects (pages 12-17), and through case studies demonstrates how key initiatives have minimised environmental impacts while

maximising socio-economic benefits for current and future generations.

The case studies highlight how Sydney Metro projects are:

- ensuring the needs of the customer are considered in the design of our product (pages 22-23)
- keeping the customer and community informed of construction activities (pages 24-25)
- minimising impacts by working with Principal Contractors and other government agencies (page 26)
- considering the needs of future generations through minimising greenhouse gas emissions (pages 32-33).

Working together with our Principal Contractors and staff across the program of works, Sydney Metro has demonstrated industry-leading standards and practices in environmental and socio-economic sustainability. In 2018, Sydney Metro won the Australian Construction Association's Sustainable Construction Award, and was recognised by the Infrastructure Sustainability Council of Australia (ISCA) for our commitment to delivering a lasting and sustainable legacy.

The following page highlights key metrics that demonstrate these achievements.



Train testing on Sydney Metro Northwest reaching Tallawong.

4. Sustainability highlights

Data reported is cumulative from 2011 to 30 June 2018.



98.5% recycled

construction and demolition waste on Sydney Metro projects. This is more than 22,000 garbage trucks worth of landfill avoided.



100% of operational electricity

on Sydney Metro Northwest to be offset through a new build solar farm in regional NSW.



814 long-term

unemployed people skilled and employed on Sydney Metro projects.

ISCA

6 Leading ISCA Infrastructure Sustainability ratings

on Sydney Metro Northwest.



100% clean spoil

reused on Sydney Metro projects, almost 6.5 million tonnes.



100% of timber used on project permanent works

is ethically sourced, recycled or reused.



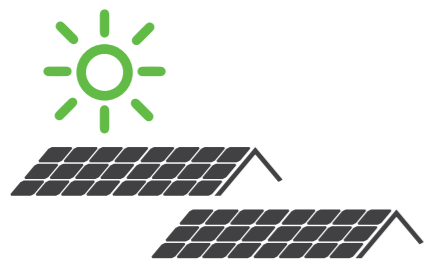
Over 15.9 million hours worked

with a commitment to sending everyone home safely.



10,220 students

engaged through the FastTracking the Future education program.



1.1 megawatt solar array

was installed on the Sydney Metro Trains Facility at Tallawong Road.



2 Aboriginal business forums held

and attended by over 100 Aboriginal businesses.



Won the 2018 Sustainable Construction Award

(Australian Construction Association).



538 small to medium enterprises in the supply chain.

5. About Sydney Metro

Sydney Metro has been tasked with developing and delivering metro railways and managing their operations.

Sydney Metro also leads the development of vibrant station precincts to meet customer and community needs, transforming the way Sydney travels and helping shape the future of Australia's largest city.

Sydney's new world-scale metro system is the biggest program of public transport infrastructure currently under construction in Australia and the largest urban rail infrastructure investment in the nation's history, revolutionising how we get around Sydney.

Further detail regarding delivery timeframes and contract packages for all Sydney Metro projects can be found at sydneymetro.info.

5.1. Sustainability at Sydney Metro

Sustainability underpins core project objectives of Sydney Metro and is integrated across all projects.

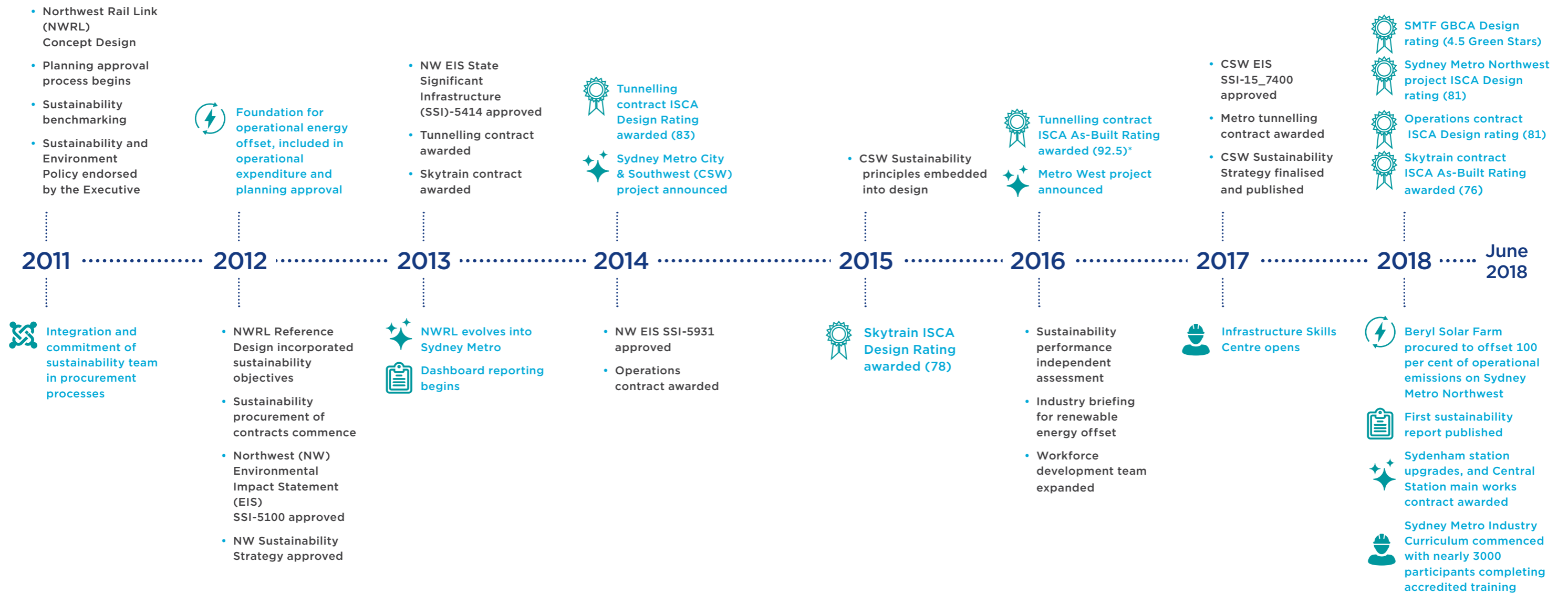
Embedding sustainability requirements into contracts across the project lifecycle has been key to Sydney Metro's success in developing and implementing best practice standards. Sydney Metro works with Principal Contractors to ensure the successful delivery and implementation of sustainability standards, targets and initiatives.

Project specific sustainability strategies provide a framework for effective management and respond to the Sydney Metro Environment & Sustainability Policy. The Sydney Metro City & Southwest Sustainability Strategy is publicly available.

Sustainability performance on Sydney Metro projects are measured against targets set out in project sustainability strategies. Third party verification rating tools (such as Infrastructure Sustainability rating tool and GreenStar) are also used to measure and monitor sustainability performance. Principal Contractors are required to report on their performance to Sydney Metro on a monthly basis. This data is collated and reported to the Sydney Metro executive.

This approach provides a robust framework to quantify performance of deliverables, and holds Sydney Metro and its Principal Contractors accountable for meeting environmental and social sustainability requirements.

Sydney Metro sustainability journey



*Highest awarded IS As-Built rating to date



5.2. Sydney Metro Northwest

Sydney Metro Northwest is delivering eight new railway stations and 36 kilometres of metro railway to Sydney's growing north west. Trains will run every four minutes in the peak, that's 15 trains an hour in each direction. Customers won't need a timetable, they will just turn up and go.

The four kilometre skytrain viaduct and Australia's first single span curved railway bridge – over Windsor Road – were completed in FY18. This new railway bridge was awarded the Global Best Project Award for design and construction by Engineering News-Record (ENR).⁴





Nearly half of the fleet's 22 fully-automated new Sydney Metro trains have been delivered and testing has begun – checking the stability, reliability and safety of the high speed trains – with over 10,000 kilometres travelled in the north west.

In preparation for its first passenger services Sydney Metro is:

- completing works on station precincts, car parks and other supporting infrastructure
- working with the operating partner to ensure everything is ready for day one of operations
- working with other transport agencies and local councils to integrate metro service into the wider transport network
- upgrading the existing suburban line between Epping and Chatswood to metro standards
- working with the community, industry and government to keep customers moving whilst we upgrade the Epping to Chatswood rail link.

Sydney Metro and Landcom entered into an agreement to deliver the new precincts around the stations between Tallawong and Epping stations. Both organisations are working together to set sustainability standards for these new precincts that will minimise environmental impact while maximising social benefits for the community and customer.

Sydney Metro Northwest, in collaboration with its Principal Contractors, has delivered consistently on commitments made in the 2012 Northwest Rail Link Sustainability Strategy. Key examples for this financial year include:

-  offsetting 100 per cent of the operational electricity requirements for Sydney Metro Northwest through a Green Products Purchase Agreement (GPPA) to procure large-scale generation certificates (LGCs) from a new build solar farm – Beryl Solar Farm – in regional NSW
-  the project achieving three different Leading ISCA IS ratings, and a 4.5 Green Star rating (Australian Best Practice)
-  the Sydney Metro Northwest operations contractor is delivering a first in infrastructure delivery by seeking Forest Stewardship Council (FSC) and Program for the Endorsement of Forest Certification (PEFC) project certification for their entire timber supply chain used to deliver the new station canopies and multi-storey carpark facades
-  listing of the White Hart Inn as a State Significant Heritage site.

5.3. Sydney Metro City & Southwest

Sydney Metro City & Southwest extends the new metro rail line from the end of Sydney Metro Northwest at Chatswood, under Sydney Harbour, through new underground city stations and beyond to the south west.

The focus of FY18 has been major design initiatives:

- on the new Chatswood to Sydenham component of the project, working with delivery partners to ensure agreed sustainability standards are being met
- refining the Sydenham to Bankstown upgrade, recognising the heritage value of this existing railway, and developing a design and delivery solution that reduces environmental and social impact (see table below).

The Sydney Yard Access Bridge (SYAB) was completed in FY18. This infrastructure will allow both Sydney Metro and Sydney Trains to access the Sydney Yard rail corridor, and enable upgrades to Central Station.

SYAB has been awarded a 78 point Silver rating under the Transport for NSW Sustainable Design Guidelines. Efficient design and construction of SYAB resulted in a carbon reduction of 17 per cent compared with business as usual (target 15 per cent), saving 328 tonnes of emissions during construction. This is equal to 146 return car trips from Sydney to Perth. The use of prefabricated components improved safety on the construction site, reduced construction time and reduced impact on commuters due to track closer.

Other enabling works – including site preparation, creation of access routes, the construction of a pre-cast facility for tunnel segments, earthworks, modifications in the rail corridor – and demolition are also underway. During demolition works, pulverisers have been used as an alternative to hydraulic hammering to reduce noise and vibration, and air quality impacts. This innovative approach is an Australian first.

Tunnelling from Chatswood to Sydenham commenced in late 2018, alongside the commencement of Metro upgrades to Sydenham and Central Stations. Detailed design of new city stations is underway to achieve a minimum 5 star Green Star rating.

Benefits realised from refining the Sydenham to Bankstown rail line upgrade

Heritage	Conserving and repurposing heritage buildings
Noise and vibration	Reducing demolition and construction works on platforms has resulted in reduced noise, vibration and dust impacts
Vegetation	Reducing the construction footprint will decrease vegetation loss around stations as well as avoid biodiversity loss within the rail corridor
Traffic	Retaining existing track has reduced impacts to road traffic, including construction and haulage traffic
Resource use	By retaining existing infrastructure Sydney Metro has minimised material use and reduced waste generation. This has also reduced fuel and electricity consumption associated with construction activities
Minimising disruption	The station construction period has been halved, significantly reducing impact on customers and the community
Accessibility	Re-levelling of station platforms and providing lifts to improve accessibility



Sydney Metro City & Southwest's concrete pre-cast facility at Marrickville.

Conserving Sydney's heritage

Sydney Metro is committed to heritage conservation, and is undertaking a comprehensive colonial archaeological salvage program on Sydney Metro City & Southwest. The salvage program stretches between Chatswood and Waterloo stations and is made up of nine colonial archaeological sites. During the archaeological excavations, artefacts from the 19th and 20th centuries have been unearthed, providing a glimpse into the local history and life of the area. This map outlines key findings to date and the heritage stories behind them.

John Stevens House Cottage has been uncovered with possible links to Billy Blues occupation of Blues Point.



A site potentially rich in Aboriginal and European heritage. The most significant find to date is the jetty and includes timber piles, rock steps and blue stone.



At 55 Hunter Street, the Tom Bass Wall fountain (1963) and Annand blue glass sculpture have been salvaged and will be re-incorporated into the new station development.



Two stanchions have been carefully preserved and will be displayed at the Sutherland Train Museum to demonstrate the electrification of the first inner city rail network.



Sandstone is synonymous with Sydney's colonial heritage, being in abundant supply and still evident in iconic buildings and monuments throughout the city. Sandstone unearthed during excavations has been carefully screened for contamination, catalogued and preserved. The sandstone will be incorporated into new stations and precincts to emphasize the local history of Sydney and to enhance heritage value.



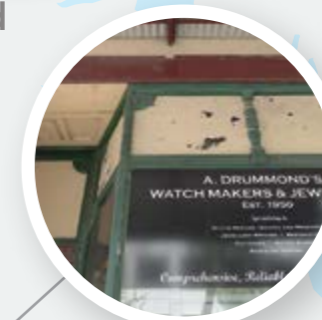
Chatswood



Archaeological investigation found evidence of the Penzance building (1878), cistern, rubbish pits and post holes.

Crows Nest

Victoria Cross



At 187 Miller Street, key heritage features have been preserved at 'A Drummonds Watermarkers and Jewellers' store.

Barangaroo

Martin Place

Pitt Street

Central

Waterloo



Tram hook, recovered from 252 Pitt Street has been donated to the Sydney Tramway Museum.

Sydenham



The Congregational Church has been preserved. An archaeological dig has uncovered a variety of artefacts (including glass bottles featured here) believed to be from historical residential use.

5.4. Sydney Metro West

In November 2016, the NSW Government announced the Sydney Metro West project – the city’s next underground metro railway.

Connecting the Parramatta and Sydney CBDs, this infrastructure investment will transform Sydney for generations to come; doubling rail capacity between the two areas, linking new communities to rail services and unlocking housing supply and employment growth between the two CBDs. Further information is available online at sydnymetro.info/west.

Geotechnical investigations

Early site investigations have been carried out for Sydney Metro West. This is part of early planning works to help inform project design, and better understand soil substrata and contamination issues, and test for contamination. Phase one of geotechnical work involved drilling 45 boreholes, both vertical and inclined between Westmead and the Sydney CBD. The boreholes have been situated to provide an understanding of environmental constraints and to minimise potential environmental impacts.

Social pinpoint

Community engagement is an important part of the planning approval process, and early community consultation on Sydney Metro West was undertaken in FY18 to better inform project investigations.

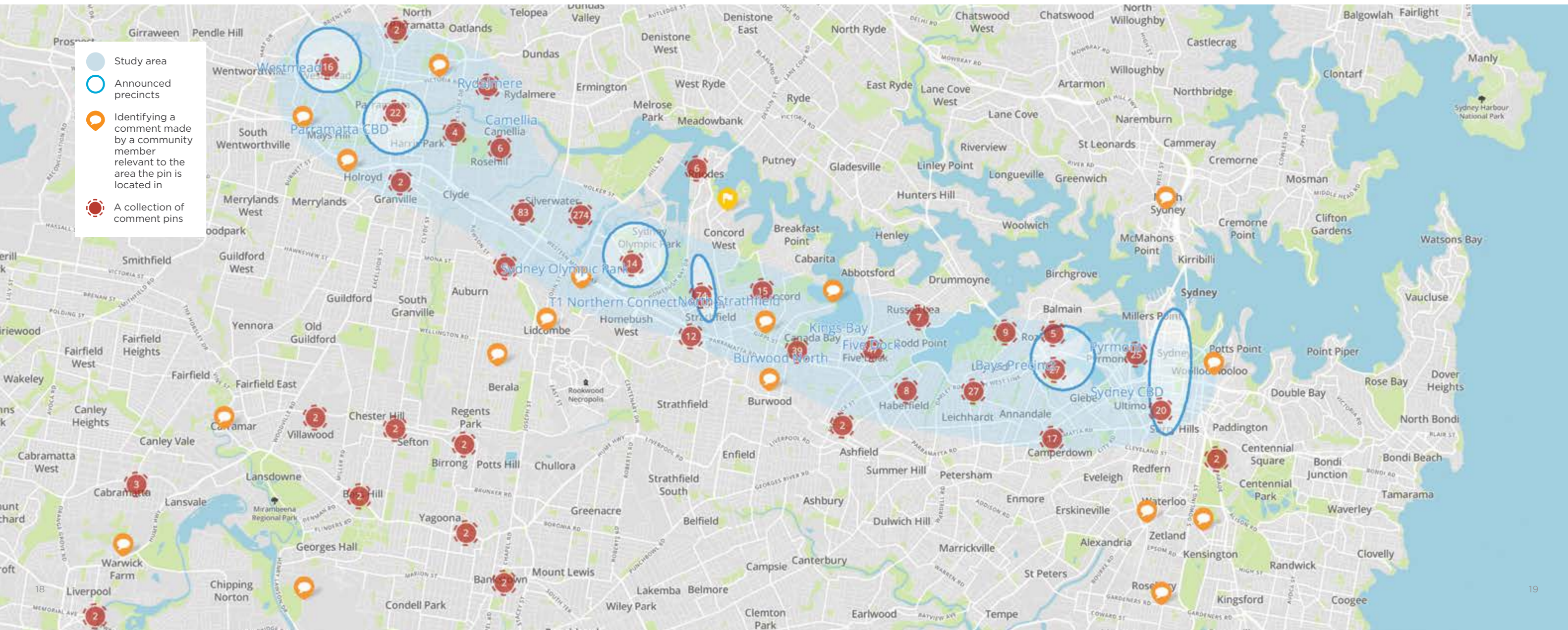
Twelve early engagement sessions were held with communities from Westmead to the Sydney CBD in April and May 2017, and an innovative online tool Social Pinpoint was used to involve the wider NSW community⁵.

Social Pinpoint is an interactive map that lets community members view the proposed alignment, indicate station locations, and provide commentary (as seen in the map below). The interactive map was visited over 5,000 times, and nearly 900 comments were received.



Sydney Metro West community engagement session

A screenshot of the Social Pinpoint tool used on Sydney Metro West.



6. Our commitment to customers and the community

Sydney Metro is shaping the future growth of Australia's busiest city for generations to come. On behalf of the NSW Government, working hand-in-hand with our Principal Contractors Sydney Metro is delivering a metro system that will move people around Sydney efficiently and reliably.

Sydney Metro is not only investing in infrastructure but taking a comprehensive approach that is socially and environmentally responsible, and that considers the needs of current and future generations. The video 'Delivering a Sustainable Railway'⁶ demonstrates this vision.

The customer is at the centre of everything Sydney Metro does. We take a measured approach to:

- minimise impact by working with industry and other government agencies

- managing risks on the road and in work sites
- keep customers and the community informed of activities, and ensure their needs are considered in the design of our product.

The following section includes a collection of case studies demonstrating Sydney Metro's commitment to customers and the community of today and tomorrow. These case studies highlight the lasting Sydney Metro legacy in the environmental and social spheres, while delivering a world class metro.

Sydney Metro project outcomes are being delivered in partnership with our Principal Contractors: Northwest Rapid Transit, Metro Trains Sydney, John Holland, CPB Contractors, Dragados, Ghella, Laing O'Rourke, and Salini Impregilo.

Sydney Metro is focused and steadfast in its commitment to sustainability. The team sets new benchmarks for the delivery of sustainable infrastructure and now motivates and inspires global best practice by demonstrating outcomes that make whole-of-life business sense. Sydney Metro has invested in, and supported, our infrastructure supply chain. In doing so have seeded a culture of competence, confidence and continuous development to deliver better outcomes - together. ISCA pays tribute to the many sustainability successes Sydney Metro has delivered to date, and looks forward to collaborating and celebrating even wider benefits in the years to come.

Ainsley Simpson

Chief Executive Officer
Infrastructure Sustainability Council of Australia

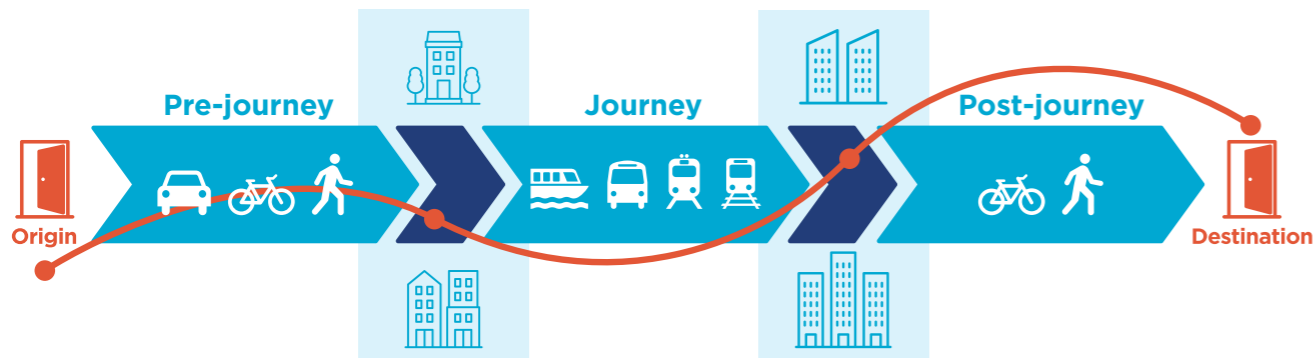


Community open day at Norwest Station.

6.1. Understanding and designing for our customer

At Sydney Metro we put the customer at the centre of everything we do, and strive to understand who they are and what is important to them. We do this by encouraging our people to step into the shoes of our customers through customer observation, immersion activities, customer research and workshops.

Door-to-door customer experience



A human-centred design approach

Sydney Metro has adopted a human-centred design approach, which is an industry first. This is an evidence-based process for problem solving. It starts with understanding the customer and ends with solutions that meet their needs. It also provides assurance that customer needs are understood and met in the products and services that Sydney Metro provides.

In FY18 we have engaged with more than 3000 customers to gain a better understanding of what Sydney Metro will mean for them.

More than 3000 customers engaged to gain a better understanding of what Sydney Metro will mean to them.



LEARNING

Design thinking across the school curriculum: deep learning through Sydney Metro

This evidence-based process for problem solving (design thinking) has also been incorporated into the Sydney Metro education program, *FastTracking the Future*.

As part of this program in 2018 Sydney Metro launched the Metro Minds Science, Technology, Engineering, Arts, and Mathematics (STEAM) Challenge.⁷ Metro Minds invited schools across Sydney to register Year 9 and 10 students to take part in a design thinking challenge to solve real world challenges. This challenge was launched to develop interest and provide insight to students who were interested in exploring career opportunities in infrastructure delivery and operations.

More than 220 Year 9 and 10 students engaged in the 2018 Metro Minds STEAM Challenge. The students were invited to come up with an innovative idea that would help support Sydney Metro's goal of connecting Sydney. Students worked in teams of four to six members.

They used the design thinking process to create and develop an innovative solution to a real challenge or opportunity that Sydney Metro has faced or may face, as we work on Australia's biggest transport project. The challenge engages students to foster innovation and human-centred design, and equips them with skills for the future.

The winning school and finalists of the 2018 Metro Minds STEAM Challenge can be found at: sydnymetro.info



Winners of the 2018 Metro Minds STEAM Challenge, Northern Beaches Secondary College - Manly Campus

6.2. Keeping the community informed

Keeping the community informed is a core focus for Sydney Metro. Ensuring everyone's safety (customer, community and workforce) during construction and understanding the needs of the community is a high priority for Sydney Metro.

To keep the community updated and to seek feedback, Sydney Metro City & Southwest engaged in 51 community information sessions, and 29 mobile community information pop-up stalls during FY18.

Since 2011, we have engaged with almost 350,000 community members across the program of works.

Using digital solutions to reach more of the community

A digital survey tool was trialled on Sydney Metro City & Southwest to capture community values and opinions. It was first used during early community engagement sessions for Crows Nest Integrated Station Development. Its ease of use meant it was positively received by community members.

This innovative approach reached culturally and linguistically diverse (CALD) groups and younger community members during the trial. The digital survey tool uses images and simple symbols (thumbs up, thumbs down) to obtain easy responses community feedback. Innovative solutions that engage the public demonstrate Sydney Metro's ongoing commitment to keeping the community informed. Building on the success, Sydney Metro is looking to implement this digital solution in future community engagement sessions, and make the tool accessible in a variety of languages.

Improving road safety for the community

Sydney Metro has focused on improving the safety of its road transport activities during construction by:

- working with its Principal Contractors to ensure improved heavy vehicle safety technology and equipment are embedded through the project transport supply chain
- providing low-risk driver competency training for all frequent heavy vehicle drivers
- raising awareness of sharing the road safety with heavy vehicles through the 'Be Truck Aware' campaign.⁸

Minimum heavy vehicle safety technologies and equipment (outlined in the figure below) have been identified as key measures to improve the safety of the project's road transport activities for communities and the workforce.

For further detail about the road safety measures refer to Our Commitment to the Workforce on page 42.

The role of environment compliance in keeping the community safe

Sydney Metro's Principal Contractors are required to comply with relevant planning approvals and environmental requirements. These requirements have been put in place to minimise construction and operational impacts on the community and the environment.

For further detail regarding compliance requirements refer to the latest Construction Compliance Reports for each project, and determinations and Conditions of Approval for each project.

The Construction Compliance Reports are produced on a six monthly basis and outline a project's construction compliance (environmental/community) during a six month period. The latest reports are the Sydney Metro Northwest Construction Compliance Report no. 10,⁹ and Sydney Metro City & Southwest Construction Compliance Report no. 2.¹⁰

Sydney Metro Northwest recognised an opportunity to work with organisations (public and private) in the Castle Hill area to take a coordinated approach to reduce the cumulative construction impact on the community. Through a collaborative approach the group has been able to reduce construction traffic impacts around the Castle Towers and Castle Hill Showground area.



6.3. Collaborating with industry and government

Collaboration is key to driving the direction and vision of Sydney Metro and is integral to the agency's ongoing success. Sydney Metro works with industry and other government organisations to build relationships, proactively solve problems, and achieve successful outcomes.

This collaborative approach supports Sydney Metro in aligning with the NSW Government's 'A ten point commitment to the construction sector'.

Talking to industry, and creating opportunities for Aboriginal business

Industry briefings¹¹

During FY18 Sydney Metro held two industry briefing events in November 2017 and April 2018 to communicate upcoming opportunities on Sydney Metro City & Southwest and Sydney Metro West. The events (combined) were attended by approximately 1500 people from various businesses.

Hosting regular briefings keeps industry updated on upcoming procurement activities and knowledge of the Sydney Metro product and expectations. It also provides a platform for industry to provide feedback to Sydney Metro to help refine processes.

Aboriginal business forum

Sydney Metro held Aboriginal business networking forums after both industry briefing events, supporting Aboriginal business capacity within the supply chain. These focused on assisting Sydney Metro contract partners to build relationships with Aboriginal businesses and supporting agencies, to increase supply chain diversity, and drive innovation and value for money through increased competition. They also helped provide information on current and future scopes of works and opportunities.

The forums were attended by more than 100 Aboriginal businesses, top-tier Sydney Metro contractors, and representatives from government agencies. Following the forums a number of Aboriginal businesses have been engaged within Sydney Metro's supply chains. Aboriginal businesses have become part of the consultation process for the development of a new industry capacity-building program.



Sustainability: working with industry peak bodies

To benchmark and measure sustainability performance, market leading sustainability tools are applied on Sydney Metro projects and contract packages.

All city stations are seeking a minimum 5 star Green Star rating with the Green Building Council of Australia (GBCA). Green Star is also applied to the Sydney Metro Trains Facility on Sydney Metro Northwest, and Landcom is investigating opportunities to apply the rating tool to precinct development in the north west. A minimum Excellent (65) ISCA Infrastructure Sustainability (IS) rating is targeted for the linear infrastructure contract packages.

The figure on page 29 illustrates the application of ISCA and Green Star on Sydney Metro contract packages.

Infrastructure Sustainability Council of Australia (ISCA)¹²

Since the inaugural Sustainability Report 2017, Sydney Metro has obtained three ISCA IS ratings on Sydney Metro Northwest:

- Sydney Metro Northwest Skytrain, As Built 'Leading' rating (76)
- Sydney Metro Northwest Operations, Design 'Leading' rating (81)
- Sydney Metro Northwest project, Design 'Leading' rating (81).

Three contracts on the Sydney Metro City & Southwest project have signed up to the ISCA IS version 1.2 scheme:

- Sydney Metro City & Southwest Tunnelling, targeting an 'Excellent' rating (65)
- Sydney Metro City & Southwest Sydenham metro upgrades, targeting a 'Leading' rating (75)
- Sydney Metro City & Southwest Central Walk and Metro station, targeting a 'Leading' rating (79).

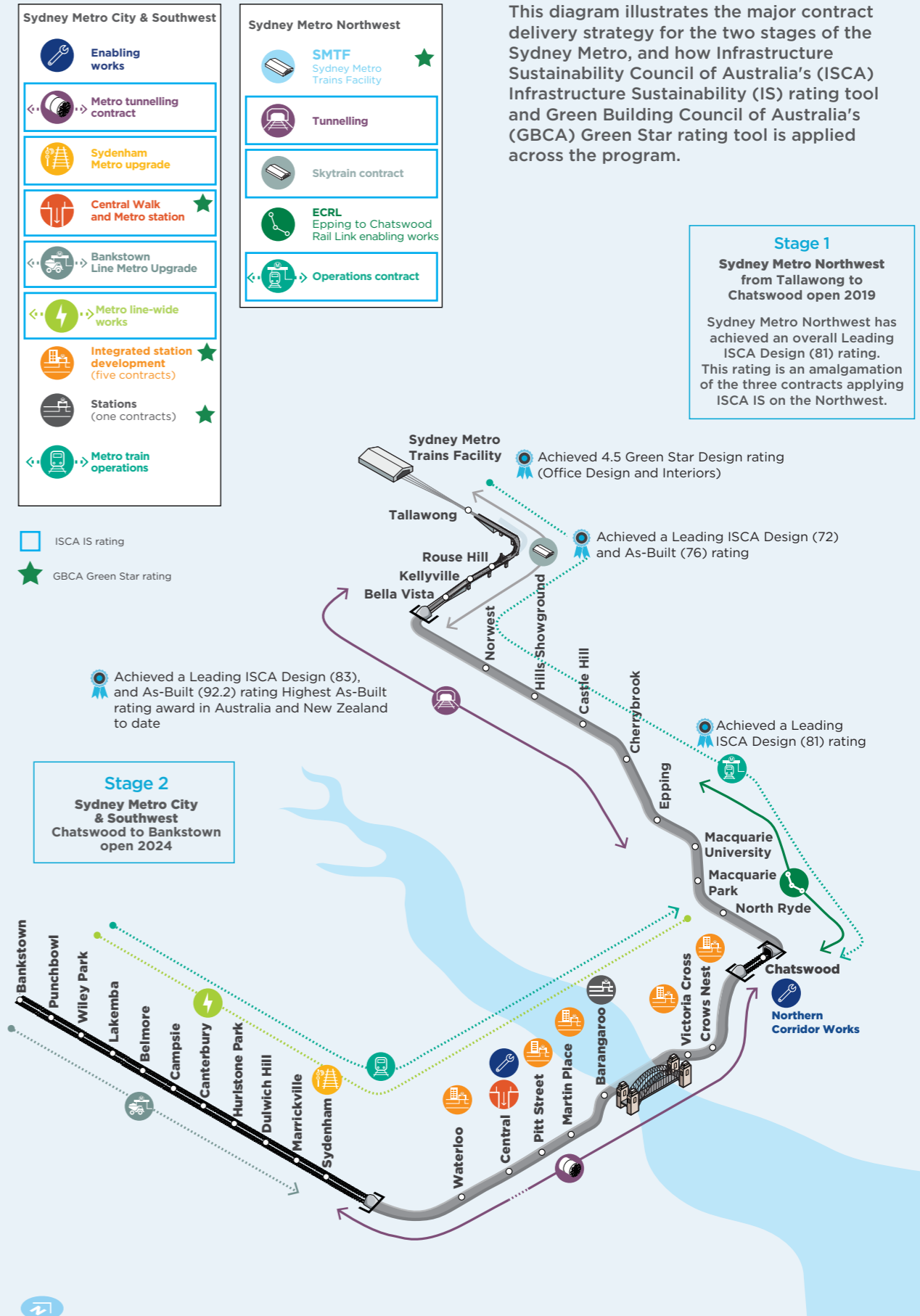
Green Building Council of Australia¹³

Sydney Metro City & Southwest has been working with the Green Building Council of Australia to develop a bespoke Green Star tool (customisation of Green Star – Design and As Built version 1.2), and to achieve a minimum 5 star Green Star rating (Australian Excellence) for underground CBD stations.

The Green Star rating process will provide an independent and publicly recognised assurance that the stations have been designed to minimise environmental impacts and operational costs, and provide optimal health and wellbeing benefits for occupants.

The Sydney Metro Trains Facility (SMTF) on Sydney Metro Northwest is targeting a minimum – Green Star Office Design and Office Interiors 4 Star Green star rating. In 2018 the SMTF received a 4.5 Green Star (Australian Best Practice) design rating.

Market leading sustainability rating tool application across Sydney Metro projects



Working with industry and government to drive better health and safety outcomes

Sydney Metro has taken a collaborative approach to target local, national and international communities of practice to explore and identify best practice occupational health and safety. This has included establishing a collaboration agreement with SafeWork NSW¹⁴, and a partnership with the Royal Melbourne Institute of Technology (RMIT) to research areas of excellence and successful initiatives from our stakeholders, contract partners and the broader Australian and international construction industries.

Collaboration efforts have led Sydney Metro to be the first Australian Government transport organisation to implement an Occupational Health, Hygiene and Wellbeing Standard which is now embedded in tender evaluations and contracts.

The implementation of the silica control strategy has included extensive collaboration with Safe Work Australia¹⁵ in delivering the Silica Virtual Seminar Series¹⁶. Safe Work Australia's Silica Series included publicly publishing video presentations of both Sydney Metro and our delivery partners to raise awareness of the health risks associated with silica dust exposure. It also contributed to:

- explaining SafeWork NSW's work in addressing silica dust control
- outlining the role client organisations play in delivering health and safety outcomes
- communicating international best practice in preventing occupational disease
- highlighting the work performed by leading contractors on controlling silica dust
- demonstrating industry's collaborative efforts to proactively manage silica dust exposure.

Working with industry and government to drive jobs and skills growth

In 2014, Sydney Metro brought industry expertise and government partners together to develop employment and skills opportunities – the Skills and Employment Advisory Group (SEAG). Since its establishment, SEAG members have shared an interest in Sydney Metro workforce development and industry participation priorities for achieving jobs, small business participation, skills development, and diversity and inclusion in the supply chain. The purpose of SEAG is to inform, advise and support the delivery of key government priorities such as the NSW Government's ten point commitment to the construction sector.

Further information regarding SEAG and program outcomes can be found in the Sydney Metro Sustainability Report 2017.

Working with industry and government to ensure environmental compliance

Sydney Metro maintains good working relationships with key environmental regulators to ensure environmental compliance on projects are adequately met. Sydney Metro consults the Department of Planning and Environment (DPE)¹⁷ and the Environmental Protection Authority (EPA)¹⁸ as key stakeholders and holds meetings with them on a regular basis to discuss improving compliance mechanisms. Sydney Metro also acts as the interface between DPE and Principal Contractors on projects to ensure a coordinated approach to environmental compliance.

Kate Cole, a focus on health and hygiene

Sydney Metro's occupational health and hygiene manager Kate Cole has been recognised as one of Australia's 100 women of influence by the Australian Financial Review. Kate has worked to make construction sites safer places through her industry-leading work in addressing the issue of silica dust exposure.

Her commitment and passion has driven change to work practices across Australia. She developed and currently drives the implementation of the construction industry's first occupational health, hygiene and wellbeing performance standard. A Churchill Fellowship¹⁹ winner, Kate has been the catalyst for change, bringing industry and government together to raise awareness to tackle the issue of silica dust. Earlier this year she developed a seminar series on silica dust that is available publicly. Kate continues to raise awareness around the impact of health hazards such as silica dust nationally and internationally, through her ongoing work with the Australian Tunnelling Society²⁰, SafeWork Australia, and the International Tunnelling Society.

6.4. Powering Sydney Metro Northwest

Sydney Metro is dedicated to mitigating climate risk for current and future generations. In 2013, the NSW Government committed to offset 100 per cent of operational emissions from electricity used on Sydney Metro Northwest.

The offset was realised in May 2018 through a Green Products Purchase Agreement (GPPA) to procure large-scale generation certificates (LGCs) from a new build solar farm – Beryl Solar Farm²¹ – in regional NSW.

Through an industry-leading process, Sydney Metro is contributing to the NSW Government's objective to achieve net-zero emissions by 2050²².

Beryl Solar Farm is currently under construction, in Gulgong in regional New South Wales. The farm utilises approximately 230,000 photovoltaic modules, and covers 145 hectares.

When operational in the first half of 2019, the solar farm has a capacity of 95 megawatt (MW) – generating enough electricity to power about 25,000 homes annually. Part of this annual generation will be used to offset 100 per cent of Sydney Metro Northwest's operational electricity needs.

Sydney Metro started the electricity procurement process for Sydney Metro Northwest in mid-2015. This was a highly collaborative process which engaged the public and private sector. An innovative approach was developed to secure electricity supply, and to deliver a reliable service while meeting the 100 per cent offset commitment.

Several financial mechanisms were put in place to achieve this:

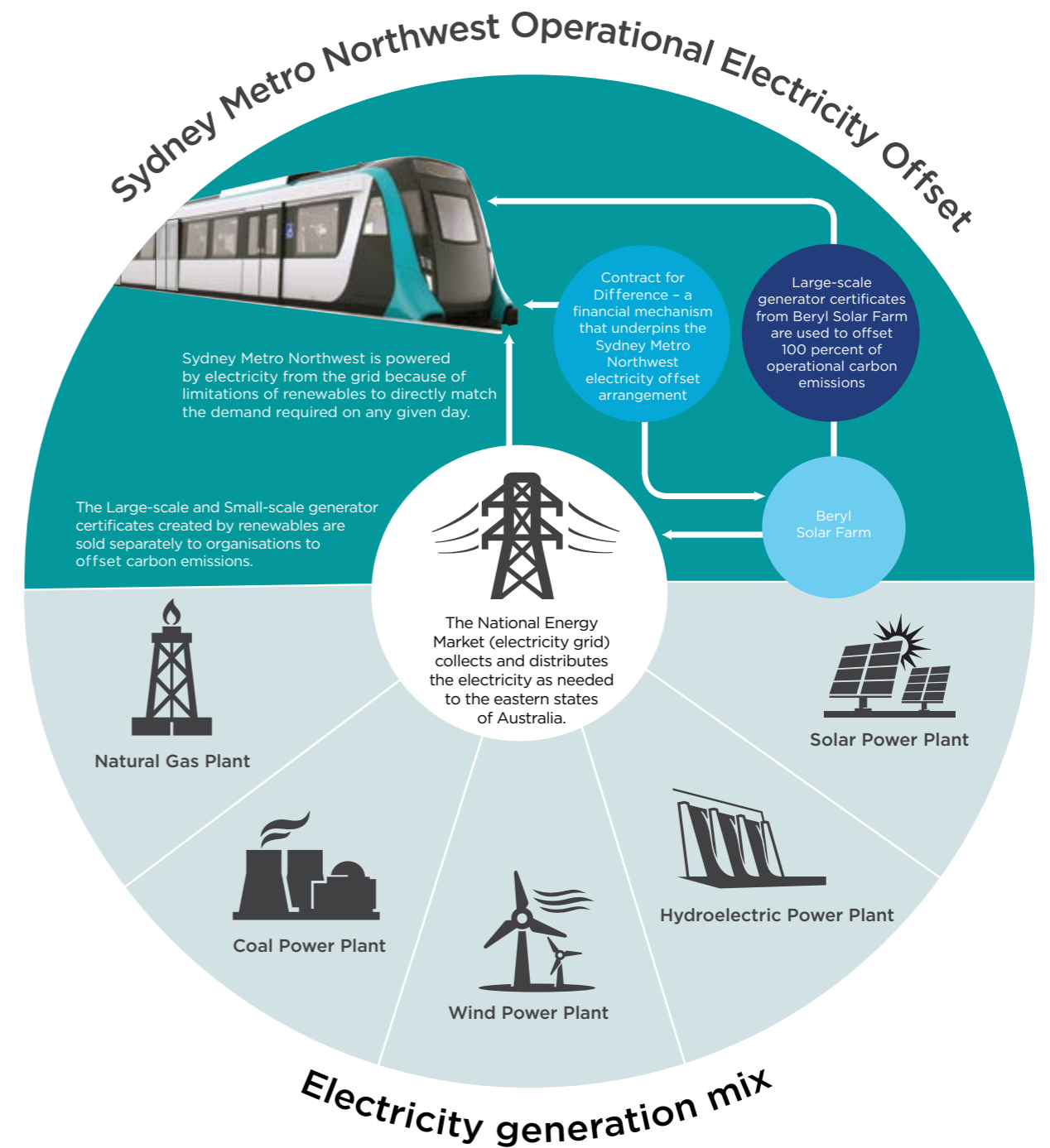
- Securing a 20-month electricity supply agreement with ERM Power. This provides full flexibility on start date, electricity demand, intensity, and use and load shape.
- Procuring a synthetic Power Purchase Agreement (PPA), to enable Beryl Solar Farm to be constructed, consisting of two parts:
 - Green Products Purchase Agreement (GPPA) under which large-scale generation certificates (renewable energy certificates) will be procured (the offset)
 - A Contract for Difference (CfD) for the electricity that the solar farm dispatches to the grid (the financial mechanism that underpins the offset arrangement).

The figure on page 33 explains the intricate relationship, which is a first for government in Australia.

Knowledge gained from the procurement process is transforming the way the NSW Government approaches electricity procurement, and the way public transport projects across Australia are powered and operated. This process has helped upskill industry and specialists in the Power Purchase Agreement process, leaving a lasting legacy.

The procurement of Beryl Solar Farm also brings with it socio-economic benefits for the local community of Gulgong (150 local jobs during construction as well as other ongoing full time positions) boosting the local economy.

This innovation highlights Sydney Metro's approach to minimising emissions and mitigating future climate risk, contributing to the long-term wellbeing of current and future generations. A similar offset commitment has been made on Sydney Metro City & Southwest.



Artist's impression of Beryl Solar Farm from above.

- Enough to power 23,000 homes annually
- Boosting the region's economy
- 150 jobs created through construction
- Offsetting the entire operational electricity needs for Sydney Metro Northwest
- 230,000 solar modules
- Covering 145 hectares

7. Environmental sustainability

Sydney Metro engages in good environmental practice to ensure the health and wellbeing of the community and our workforce.

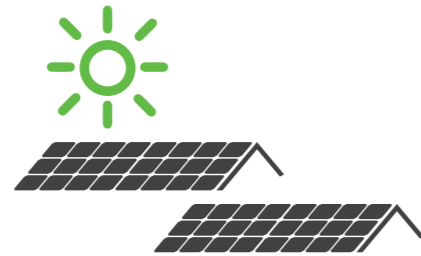
Sydney Metro has proactively collaborated with our Principal Contractors and other government agencies to minimise impact on the environment during construction and operations, and where possible improve existing conditions.

Sydney Metro establishes and implements project sustainability targets to ensure the best possible environmental outcomes are delivered. For a complete list of project targets and initiatives refer to the Sydney Metro Sustainability Report 2017², and Sydney Metro City & Southwest Sustainability Strategy.



98.5% recycled

construction and demolition waste on Sydney Metro projects. This is more than 22,000 garbage trucks worth of landfill avoided.



1.1 megawatt solar array

was installed on the Sydney Metro Trains Facility at Tallawong Road.



100% of timber used on project permanent works

is ethically sourced, recycled or reused.



Sydney Metro Trains Facility at Tallawong Road from above, showcasing the 1.1 MW solar array²⁴.



Forest Stewardship Council timber installed at Tallawong Road Sydney Metro Northwest Station.

7.1. Environmental management

Sydney Metro is committed to minimising environmental impacts. Sydney Metro Northwest²⁵ and Sydney Metro City & Southwest²⁶ have undertaken Environmental Impact Assessments to understand the extent of construction and operational related impacts and to identify how they can be minimised. Principal Contractors carry out work in accordance with the project's environmental requirements set out in the relevant Planning Approval and their Environment Protection Licences.

Sydney Metro establishes minimum environmental management standards for construction related activities through its Construction Environmental Management Framework (CEMF)²⁷ which applies to Principal Contractors involved in the delivery of the Sydney Metro program.

Principal Contractors use this framework when developing Construction Environmental Management Plans (CEMP) and sub-plans. The implementation of these plans is overseen by Sydney Metro's Compliance Tracking Program.

In Sustainability Report 2017, Sydney Metro reported an average monthly non-compliance rate of 0.6 for every 100 requirements between September 2016 and August 2017 for Sydney Metro Northwest. During the September 2017 to August 2018 reporting period:

- Sydney Metro Northwest reported an average monthly non-compliance rate of 0.7
- Sydney Metro City & Southwest reported an average monthly non-compliance rate of 0.1
- Sydney Metro program of works reported an average monthly non-compliance rate of 0.4.

For detailed information related to how Sydney Metro projects are managing environmental compliance refer to Sydney Metro Northwest Construction Compliance Report #10²⁸ and Sydney Metro City & Southwest Construction Compliance Report #2²⁹. These reports are produced for DPE on a six monthly basis and provide an up to date snapshot of environmental compliance performance.

7.2. Resource efficiency

Sydney Metro is committed to resource efficiency and places a heavy focus on materials efficiency as well as recovery, reuse and recycling of waste on projects.

Material use

Concrete and steel makes up the majority of materials used on Sydney Metro projects. Sydney Metro Northwest and Sydney Metro City & Southwest have together used 1,487,559 tonnes of concrete and 116,473 tonnes of steel since the commencement of the program of works in 2011.

The graph below identifies the amount of concrete and steel used on Sydney Metro projects during the FY18. Sydney Metro recognised an opportunity to maximise the use of supplementary cementitious material in concrete mixes used on Sydney Metro City & Southwest tunnelling works. On average 42 per cent of Portland cement has been replaced with supplementary cementitious material during the reporting period, which translates to a significant reduction in greenhouse gas emissions.

Ethical timber procurement

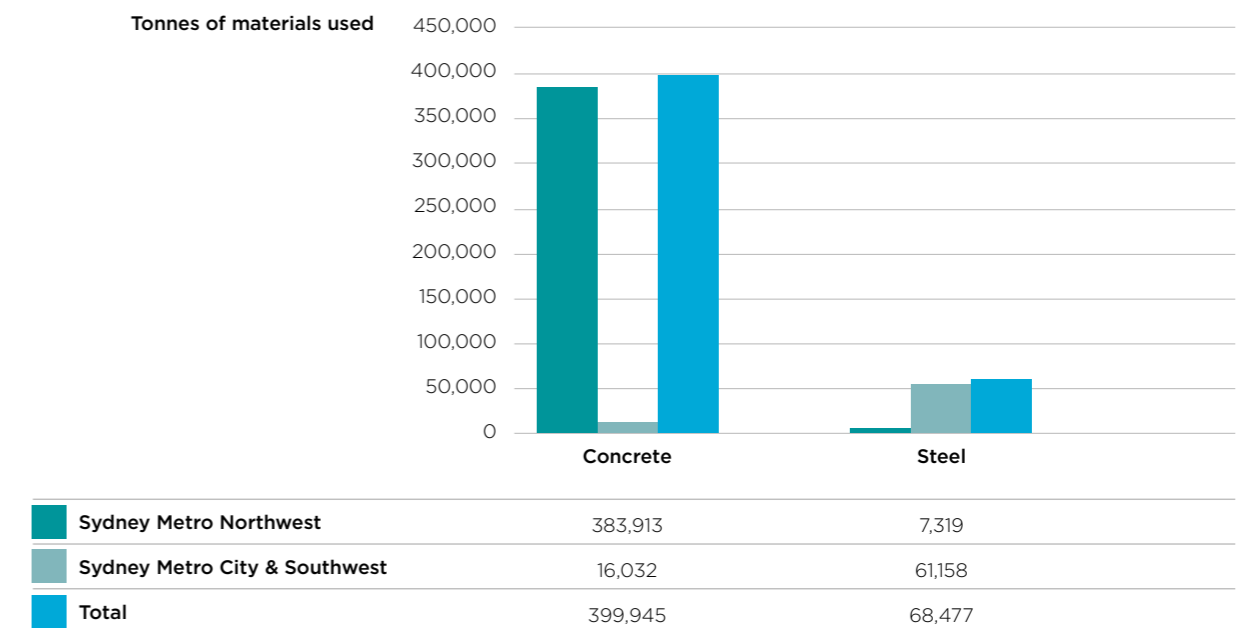
Northwest Rapid Transit (NRT)³⁰ is delivering the Operations, Trains and Systems contract for Sydney Metro Northwest, and is the first infrastructure project seeking Forest Stewardship Council (FSC)³¹ and Program for the Endorsement of Forest Certification (PEFC)³² project certification in Australia.

FSC and PEFC project certification provide an end-to-end chain of custody to ensure a robust process is in place to remove any non-certified timber from the supply chain. This initiative sends a strong market signal to drive market transformation and enables the project to make a validated and certified claim around FSC and PEFC.

NRT developed a timber procurement strategy to secure the supply needed for the new station canopies and multi-storey car park facade, which went beyond business as usual. This was in response to the requirement that 100 per cent of all timber used on Sydney Metro projects must be re-used, post-consumer recycled or ethically certified timber where practicable.

With approximately 200 linear kilometres of certified timber, Sydney Metro Northwest is the largest applicant of this process within Australia, representing a rare and innovative approach to ensuring certified timber is procured.

Amount of concrete and steel used on Sydney Metro projects during FY18



Waste and spoil

As of June 2018, Sydney Metro projects had generated 249,589 tonnes of construction and demolition (C&D) waste since works commenced. Of this 245,855 tonnes (98.5 per cent) have been recycled. Sydney Metro projects are exceeding set waste recycling targets (90-95 per cent, dependent on the project).

Sydney Metro has a 100 per cent clean spoil reuse target. From commencement of the program of works until June 2018, 6.43 million tonnes of clean spoil have been reused on Sydney Metro projects, by other government projects, by industry and housing developments, and in environmental restoration projects.

The Sydney Metro City & Southwest tunnelling contractor has obtained a 99 per cent construction and demolition recycling rate during the current reporting period.

Water

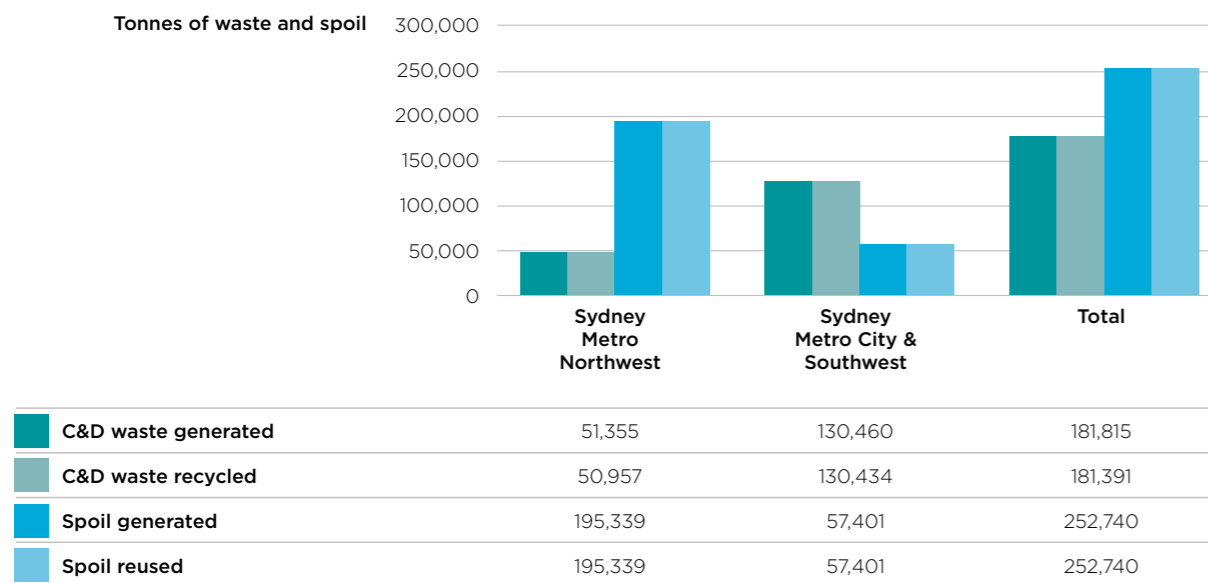
From project commencement in 2011, to 30 June 2018, 897,748 kilolitres of water have been used on Sydney Metro projects. This is less than the maximum total water consumption targets set for each project. During the FY18 reporting period, both Sydney Metro projects, currently in delivery, are meeting the total water consumption targets.

Sydney Metro Northwest did not meet the non-potable water targets (33 per cent). This is because of tunnelling activities using more potable water than expected due to occupational health and safety concerns. The operations contract is meeting the non-potable water target during delivery and actively seeking to minimise water use during operations.

Sydney Metro City & Southwest also has not met the non-potable water target (33 per cent). However, this is still in the early stages of construction and performance is anticipated to improve over the next reporting period.

The operations contractor is designing and constructing water-saving initiatives which will result in an overall 34 per cent reduction in water demand and a 73 per cent replacement of potable water with non-potable water during the operations phase.

Amount of waste and spoil generated and recycled on Sydney Metro projects during FY18.



The tunnel boring machine (TMB) cooling system on Sydney Metro City & Southwest is a closed-looped water recycling system, saving an estimated 260,000 kilolitres (kL) of water during construction.

Water-saving initiatives include:

- water-efficient fittings throughout stations and buildings
- water sensitive urban design to provide passive irrigation of landscaping
- sub-surface drip irrigation system with evapotranspiration and flow sensing
- replacement of water tanks with direct connection to the main water network
- smart metering
- recycling water in the train washing facility
- connection of three of the eight new stations and the Sydney Metro Trains Facility (SMTF) to the Rouse Hill recycled water network
- installation of rainwater tanks at all new Sydney Metro Northwest stations and the SMTF to supply water for irrigation.



Pulveriser engaging in demolition works on the Sydney Metro City & Southwest project at Victoria Cross work site.

7.3. Climate resilience and energy

Sydney Metro is aligned with the NSW Government's commitment to taking effective action on climate change and to making NSW more resilient to a changing climate³³. Recognising that Transport accounts for over 42 per cent of the State's total energy consumption Sydney Metro is taking proactive steps to reduce its energy consumption and overall carbon footprint.

During construction Sydney Metro projects are required to offset 20 per cent of carbon emissions produced by construction electricity. This has been achieved on all completed Sydney Metro Northwest and Sydney Metro City & Southwest project components as of June 2018.

When operational in 2019, 100 per cent of operational electricity used on Sydney Metro Northwest will be offset by the Beryl Solar Farm (refer to case study Powering the Northwest on pages 32-33 for further detail). Similar offset commitments have been made for the City & Southwest project.

A 1.1 megawatt solar array was installed on the SMTF at Rouse Hill during the reporting period. This facility will help supply 5-10 per cent of electricity used at Sydney Metro Northwest stations and the maintenance facility and station precincts respectively.

As of June 2018, carbon emissions from fuel, electricity and materials associated with construction activities on Sydney Metro Northwest were on track to achieve the set targets. Sydney Metro City & Southwest is tracking carbon emissions from associated activities and during the reporting period was working with contractors to establish a baseline target. Reporting of emissions on Sydney Metro City & Southwest will commence in 2019.

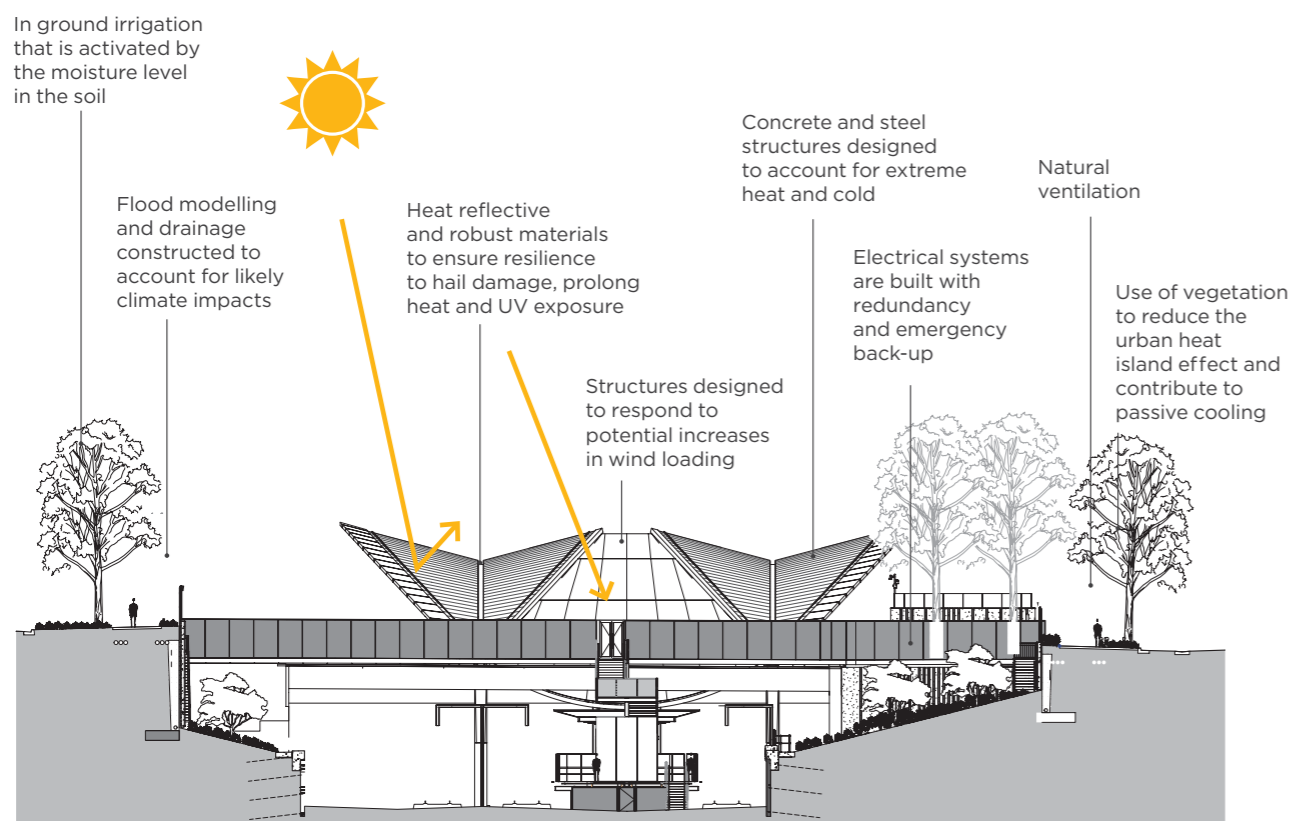
The design and delivery of the Sydney Metro systems address the likely impacts of climate risk over the life of the railway line, and builds in appropriate resilience and future flexibility. Station design on Sydney Metro Northwest (page 40)- highlights these features.

Further detail regarding Sydney Metro's climate resilience during design and operation can be found in the Sustainability Report 2017.

Energy efficiency is a key feature of Sydney Metro projects. The Sustainability Report 2017 discusses energy efficiency targets and requirements, which remain the same for FY18.

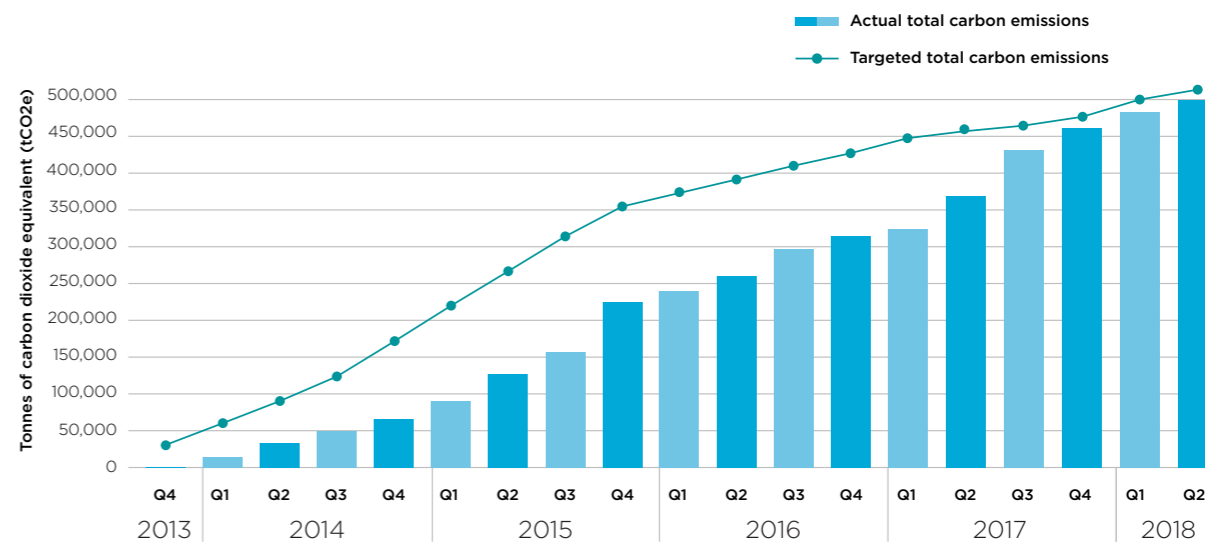
The proposed tunnel segment mix on Sydney Metro City & Southwest has 20 per cent less embodied carbon than that used on Sydney Metro Northwest.

The image below displays a typical underground Sydney Metro Northwest station, and the passive design features incorporated to improve climate resilience through landscaping, natural ventilation flows, energy efficiency and water-usage reduction features.



Greenhouse gas emissions

Greenhouse gas emissions (fuel, electricity and materials) were tracked during the delivery of Sydney Metro Northwest from commencement of construction in late 2013 to the end of FY18. The acceleration of construction activity during FY18 is reflected in the increased carbon emissions, however emissions are tracking below target.



8. Our commitment to the workforce

Sydney Metro has facilitated the development of a highly skilled workforce in the Greater Sydney region.

We are committed to creating healthy work environments and sustainable jobs, and ensuring transferable skill sets are developed in a diverse and inclusive workforce, supporting a strong and growing economy.

The following section details the health and safety initiatives in place, and how Sydney Metro is engaging with the supply chain and the workforce to support jobs and skills development.



814 long-term

unemployed people skilled and employed on Sydney Metro projects.



Over 15.9 million hours worked

with a commitment to sending everyone home safely.



2 Aboriginal business forums held

and attended by over 100 Aboriginal businesses.



8.1. Health, safety and wellbeing

Sydney Metro is leading best practice in health and safety across industry, driven by the Health and Safety Strategic Plan 2016-2019, which is aligned with Transport for NSW's Safety Strategic Plan 2018-2022. The long-term success and legacy of the Sydney Metro program is dependent on workforce safety and wellbeing performance.

During the report period, an average of over 5,000 people were on the ground daily, working about 1 million hours a month. Over 32 million hours of work has been completed on Sydney Metro projects since construction commenced in 2012.

During FY18 about 11.2 million hours have been worked, with a commitment to send everyone home safely.

The safety, health and welfare of this workforce is Sydney Metro's highest priority. Sydney Metro recognises the importance of preventing work related injury, illness and diseases in the thousands of workers who contribute to the successful delivery of this world-class infrastructure.

Silica dust and tunnelling

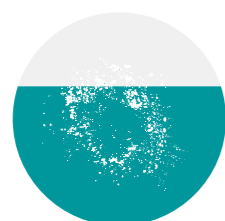
Controlling silica dust exposure is one of Sydney Metro's highest health and safety priorities. An occupational health strategy was prioritised and implemented with the aim of protecting thousands of Sydney Metro project workers from occupational related disease.

A one-size-fits-all prescriptive approach to health risk management cannot be applied as each contract must assess unique health hazards. Sydney Metro has developed and implemented the construction industry's first risk based Occupational Health, Hygiene and Wellbeing Standard. The standard is now embedded in Sydney Metro tenders, is a condition of all contracts and has become the benchmark for occupational health performance.

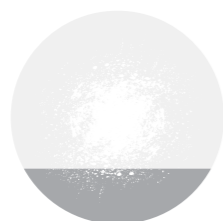
Key focus areas of the Occupational Health, Hygiene and Wellbeing Standard

Competency	Health risk assessment	Health risk control	Health risk review
Sydney Metro recognises the importance of engaging competent specialists' early on in the project life-cycle to inform the effective and proactive management of health risks. The Sydney Metro performance standard mandates minimum competency requirements and includes a requirement for each Major Contractor to engage a Certified Occupational Hygienist (COH)*.	Consideration of occupational health risks at both the program and project level are included in the Health and Safety Risk Management Standard. The performance of risk assessment activities now includes the consideration of health risks. Three levels of health risk assessment are conducted and facilitate resources to be allocated and prioritised to control hazards.	To improve the use of the control hierarchy and reduce the risks posed from identified health hazards, the performance Standard requires the selection, documentation, revision and evaluation of controls prior to the commencement of work activities. Exposure control plans are produced by the COH to select suitable control measures before work starts and allows controls to be effectively implemented.	The risk-based approach to health hazard control includes competent occupational hygienists performing exposure monitoring to determine if measures to control health hazards are effective. The results of exposure monitoring are reported to Sydney Metro to identify trends and inform future activities.

Percentage of contractor work groups across Sydney Metro during FY18 required to have specific plans in place to control exposure to health hazards prior to commencing work. This is based on the assessed risk to health by a Certified Occupational Hygienist (COH)[®].



60%
Respirable
crystalline silica



21%
Respirable
dust



100%
Psychosocial
mental health



58%
UV
radiation



74%
Occupational
noise

Managing road safety in urban environments during construction

The construction of Sydney Metro alongside other major infrastructure projects involves the transportation of millions of tonnes of excavated spoil and construction materials through Sydney's metropolitan road network using heavy vehicles.

Recognising the potential impacts of the project's significant transportation task, Sydney Metro introduced key initiatives to minimise road safety risks during construction by applying the safe system approach to road safety. These include:

- minimum heavy vehicle safety technology and standards to reduce heavy vehicle blind spots and improve overall vehicle safety and visibility (refer to the infographic on page 25)
- low risk driver training for all frequent heavy vehicle drivers engaged on the project aligning to accredited units of competency. By the end of FY18, over 580 drivers had completed the course, with a 94 per cent positive feedback rate and high transferability of skills

- collaboration with industry and government to develop the now widely promoted Be Truck Aware campaign³³, which aims to reinforce safe driving behaviours when sharing the road with heavy vehicles. The campaign has reached over 4.4 million people in NSW
- alternative transport methods removing heavy vehicles from densely populated areas by barging spoil and construction materials at Barangaroo and Blues Point
- the establishment of a truck marshalling facility at White Bay to facilitate the safe coordination of truck movements into the Sydney CBD.

Engagement and collaboration with road safety agencies within government, road user groups and the heavy vehicle industry has supported the development and application of these initiatives.



Sydney Metro Pre-Employment Program participants training at the NSW Infrastructure Skills Centre.

Managing health and safety risk

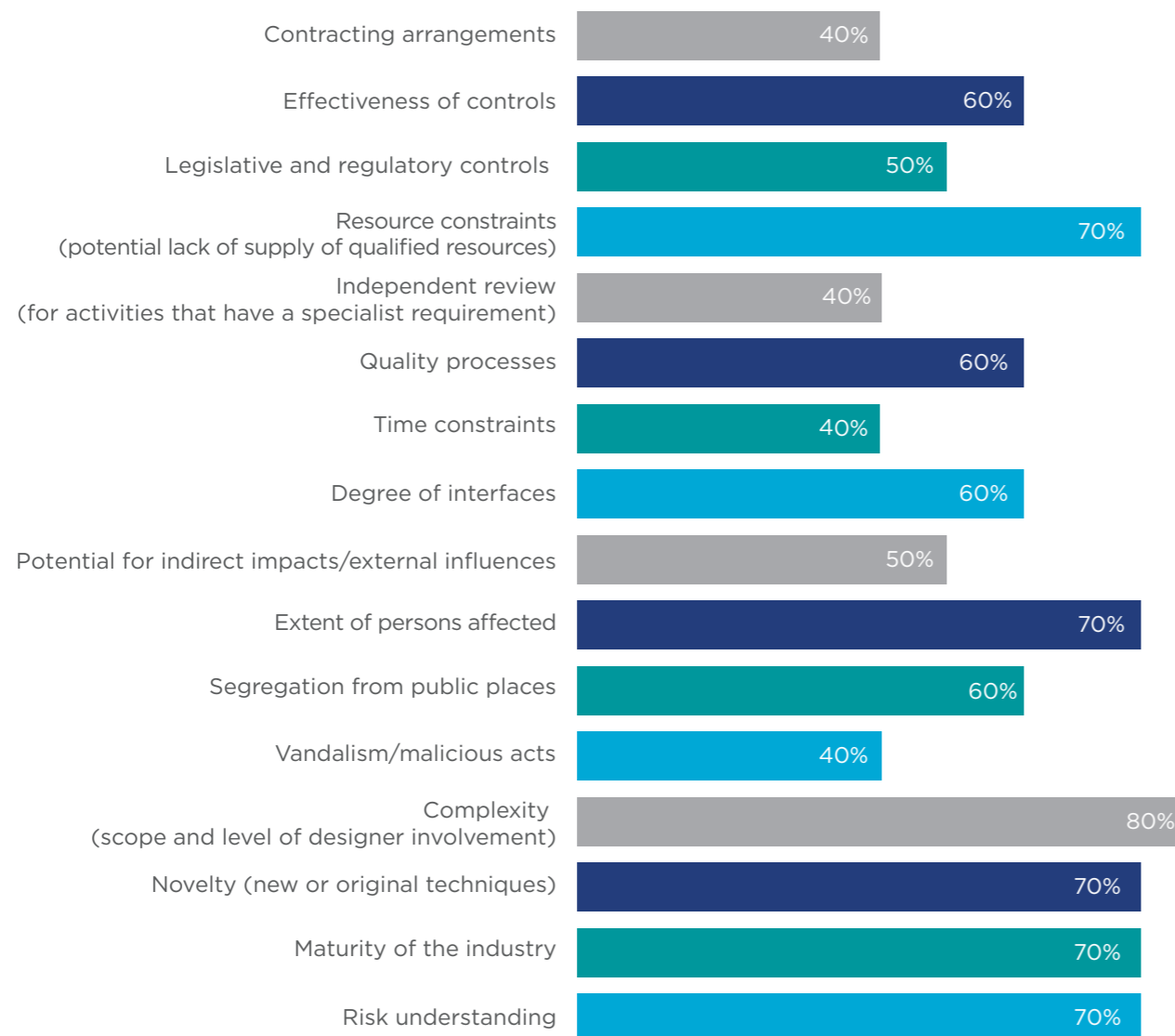
Sydney Metro developed a risk based approach – Horizon 180 tool (H180) – to construction safety during project delivery. This is aligned to international best practice, based on lessons learned on Sydney Metro Northwest, and applied findings from the United Kingdom Health and Safety Executive³⁵ regarding contributing factors to major construction risk events.

This tool is used to analyse potential catastrophic scenarios prior to construction activities commencing, and minimise the requirement for reactive risk management measures. This is an innovative approach to controlling risk through consideration of

contributory risk factors. The 16 contributory risk factors (as seen below) are individually weighted, and scored from one to five to determine an overall weighted average score. This provides a relative rating to enable comparison against individual construction activities as well as provide an aggregated risk profile accounting for the construction time chainage program. The scenario outcomes inform the construction risk management program and day-to-day surveillance activities, and are used to inform the Sydney Metro Executive Team.

This risk management tool is an important component in keeping the workforce and the public safe during construction activities.

An example of how the 16 contributory risk factors could be individually weighted to determine a rating



8.2. Workforce development and industry participation

Sydney Metro is committed to building skills, diversity, jobs and industry capacity through its delivery and operations program. This commitment aligns with and helps support the NSW Government’s ‘A ten point commitment to the construction sector’³⁶ commitment’s 9 and 10.

The Sydney Metro workforce development and industry participation strategy (including the Aboriginal Participation Strategy) outlines key priorities and objectives as well as aspirations to drive workforce development and industry participation outcomes.

Priorities include:

- **Industry participation** – increase opportunities for employment of local people, participation of small and medium enterprises including Recognised Aboriginal Businesses, and support industry to compete in both home and global markets through active participation in client led programs.

- **Workforce skills development** – enable targeted and transferable skills development in areas with local and national skills shortages, support changing job roles and increase skill requirements, and embed transferable skills in the workforce.
- **Diversity and inclusion** – establish initiatives to increase diversity within the workforce and supply chain through collaborative partnerships with a key focus on Aboriginal participation.
- **Inspiring future talent and developing capacity** – engage young people via education and work experience and support vocational career development through apprenticeships and traineeships.

These are achieved through contractual mechanisms and collaborative client led programs, strategic advisory groups with government and industry representatives and are further complemented by our contracting partners led initiatives.

The following section details the outcomes of these initiatives to date.



Sydney Metro apprentices with the NSW Premier, the NSW Deputy Premier, and the Minister for Transport and Infrastructure.

Diversity and Inclusion employed on the project

Sydney Metro is committed to developing a diverse and inclusive workforce and supply chain.



2700

Young people under 25



184

Young people not in education and training



154

People with a registered disability



311

Aboriginal Peoples



814

Long-term unemployed



1803

Culturally and linguistically diverse backgrounds

Sydney Metro Industry Curriculum (SMIC)*

Over 2,700 participants have successfully completed the SMIC program.



52%

held no qualifications



28%

required English language support



13%

required literacy and numeracy support



7%

had not completed Year 10

Positive feedback rates from participants

99%

Demolition worker

96%

Civil Construction Worker

97%

Heavy Haulage Driver

97%

Rail Protection Officers

64%

Leadership

*For further information regarding SMIC refer to the 2017 Sustainability Report.

^ Established in 2016 with Sydney Metro's lead group training organisation, the program aims to provide additional mechanisms to support retention and completion rates.

Apprentices and Trainees achievements



165 new apprentices and trainees engaged

for over 20 weeks achieving Sydney Metro Northwest apprentice and trainee target



Over 500 apprentices and trainees have worked

across Sydney Metro program of works



Over 50 apprentices and trainees have

participated in the Sydney Metro Apprentice and mentoring program^

Pre-employment program

With a workforce of over 30,000 people across the Sydney Metro program to date, Sydney Metro recognised the opportunity to leave a lasting legacy for the people of NSW by establishing a workforce development program for our projects.

Sydney Metro's pre-employment program helps local and long-term unemployed people find jobs on major transport infrastructure projects. Launched in November 2014, it was awarded the 2015 NSW Premier's Award in the category 'Making NSW a better place to live'.

The program provides tailored technical training and employability skills, instilling confidence and increasing communication and team working skills. Training is aligned to specific job roles and existing vacancies with Sydney Metro's contractor partners.

Key partners are Jobactive providers, who source program participants, and Registered Training Providers who deliver the training. To date, eight programs have achieved a 96 per

cent completion rate. Of those who completed the program, 80 per cent gained employment.

Following the precast programs, 12 participants employed in a Sydney Metro pre-cast yard completed traineeships in Process Manufacturing, which has now been added to the NSW Skills List as a result of increased requirements.

In July 2018, the Tunnel Station Excavation contractor, with support from Sydney Metro, Global Skills Australia and TAFE NSW delivered a Civil Construction pre-employment program with a diverse cohort.

All fourteen participants successfully graduated and have been offered full time employment on the Sydney Metro City & Southwest Project, and are completing apprenticeships.

The model has been recognised as best practice by the Australian and NSW governments, and has been successfully replicated across other industries and jurisdictions.



93 Total number of participants

96%

successful completions (89 participants)

58%

employed on Sydney Metro projects (54 participants)

80%

of total participants achieving employment (74 participants)

41%

of participants have been Aboriginal People (38 participants)

8.3. Procurement practices and the supply chain

Sydney Metro projects have a far reaching global supply chain. Our strategies address both environmental and social procurement.

Sustainable procurement for Sydney Metro involves giving consideration to environmental socio-economic matters related to procurement practices through alignment with international standards such as the BS8903:2010 Principles and framework for procuring sustainably³⁷, and ISO20400: 2017 Sustainable procurement guidance.³⁸

Sydney Metro has developed and implemented sustainable procurement strategies for each project based on international best practice, which has been informed by benchmarking on availability and cost of sustainably-sourced materials. These strategies require all Principal Contractors to develop and implement their own sustainable procurement policy and materials management plan. This process is illustrated on page 49.

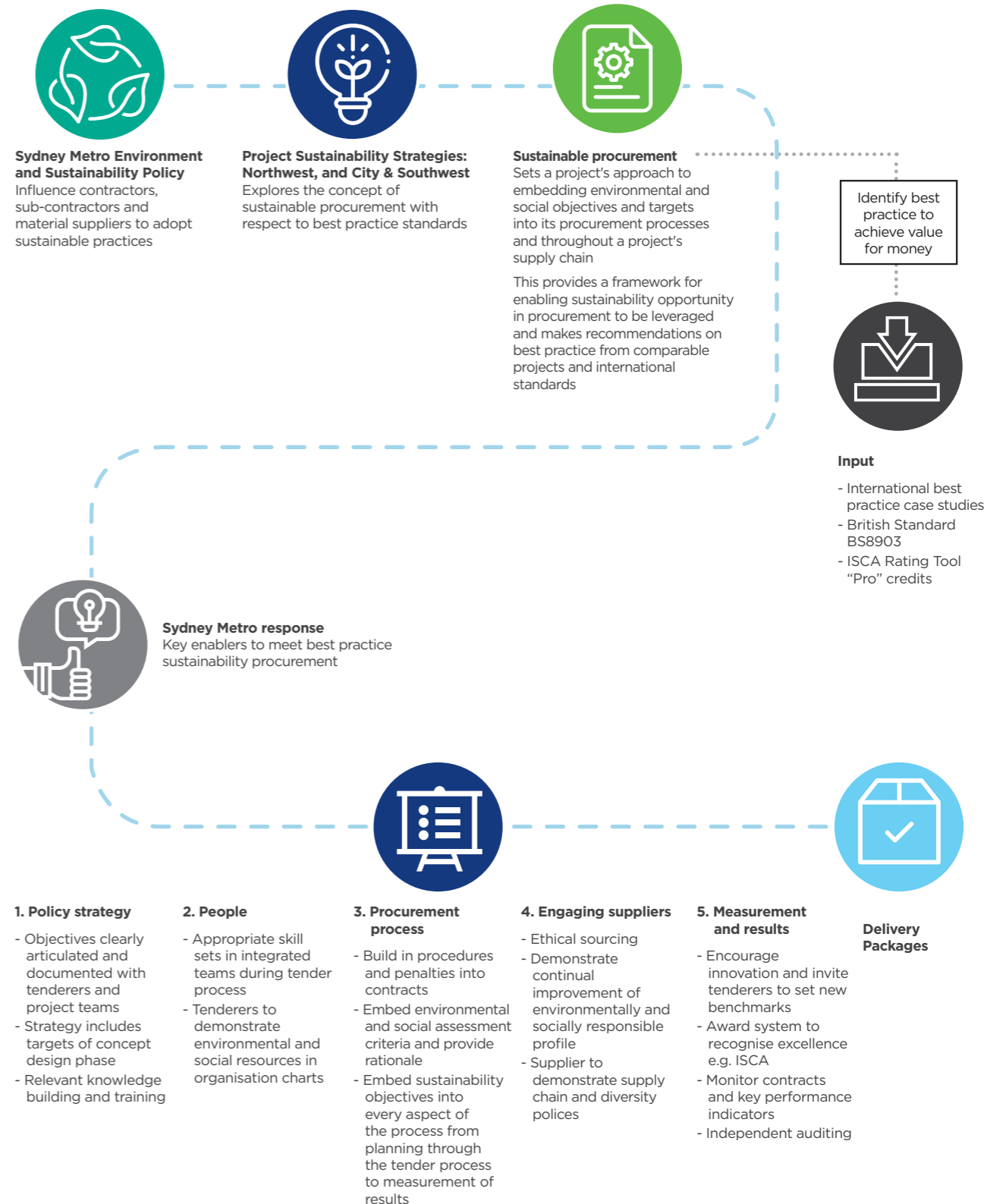
Supply chain diversity and inclusiveness

Sydney Metro is committed to enabling supply chain diversity through an increase of small to medium enterprises, including Recognised Aboriginal Business and social enterprise participation. This is achieved through contractual mechanisms as well as Principal Contractor procurement initiatives, which encourage capacity and capability building.

NSW government has also established policies which support industry participation such as the Aboriginal Participation in Construction policy. To date eight per cent of Sydney Metro City & Southwest supply chain are Recognised Aboriginal Businesses.

Sydney Metro has also partnered with Social Traders^{39,40} to facilitate better engagement with social enterprises⁴¹. Engaging with social enterprises in the supply chain is a cost neutral method of leveraging Sydney Metro projects to deliver social benefit to disadvantaged persons beyond the construction industry.

Sydney Metro sustainable policy and strategy mechanisms.



9. Looking ahead

On 1 July 2018 Sydney Metro became a statutory authority with the passing of the Transport Administration Amendment (Sydney Metro) Act 2018⁴². This will require Sydney Metro to produce annual reports from financial year 2019 (FY19) – future sustainability reporting will align to this requirement.

Sydney Metro Northwest opens in the second quarter of 2019, and work will continue on Northwest precinct development and activation in partnership with Landcom.

On the Sydney Metro City & Southwest project, demolition activities will be completed during the next reporting period and tunnelling activities will be the focus for the project. During tunnelling, spoil management will be a key consideration for the project.

At Central Station, metro box excavations will start. Across the project, new contract procurement and design will continue to be the primary focus. It is expected that Sydney Metro will have planning approval determinations for all Integrated Station Developments for the City & Southwest project during the next reporting period.

Project development and investigations will continue on Sydney Metro West, and the proposed metro railway servicing the new Western Sydney Airport.

Sydney Metro will continue to collaborate with industry and government to deliver socially and environmentally beneficial outcomes for the people of Sydney today and tomorrow. Key goals over the next financial year include:

- continue to improve the approach to minimise environmental impacts
- further develop the workforce and health and safety approaches
- evaluate and measure sustainability performance on projects, and investigate how this compares to current best practice.

Sydney Metro will continue to work towards our mission of delivering a connected metro service for Sydney, providing more choice to customers and increasing opportunities for our communities now and in the future.



Appendix A:

Global Reporting Initiative (GRI) Standard Content Index

Below is the relevant GRI index relevant to the Disclosures of GRI Standard 2018. Sydney Metro has taken a limited approach to the application of GRI to date, no verification or external assurance has been undertaken.

GRI Standard Disclosures	Location and comment	Boundaries and notes	Omissions
General disclosures			
102-1 Name of the organisation	Sydney Metro Authority		
102-2 Activities, brands, products, and services	6. About Sydney Metro (p. 10-11)		
102-3 Location of headquarters	Sydney, New South Wales Australia		
102-4 Location of operations	6. About Sydney Metro (p. 10-19)		
102-5 Ownership and legal form	6. About Sydney Metro (p. 10 and 9) Looking ahead (p. 51)		
102-6 Markets served	6. About Sydney Metro (p. 10-19)		
102-7 Scale of the organization	Transport for NSW Annual Report 2017-18 or Sydney Metro Sustainability Report 2017		
102-8 Information on employees and other workers	9.2 Workforce development and industry participation (p. 45-48)		
102-9 Supply chain	9.3 Procurement practices and the supply chain (p. 48-49)		
102-10 Significant changes to the organization and its supply chain	6. About Sydney Metro (p. 10-11) 10. Looking ahead (p. 50)		
102-11 Precautionary Principle or approach	Sydney Metro is governed by the Protection of the Environment Administration Act 1991 which aligns with the Precautionary Principle		
102-12 External initiatives	7.3. Collaborating with industry and government (p. 26-29)		
102-13 Membership of associations	7.3. Collaborating with industry and government (p. 26-29)		
102-14 Statement from senior decision-maker	3. Foreword from Acting Chief Executive (p. 6)		
102-16 Values, principles, standards, and norms of behaviour	6. About Sydney Metro (p. 10) 7.1 Understanding and designing for our customer (p. 22-23)		
102-18 Governance structure	Transport for NSW Annual Report 2017-18		
102-40 List of stakeholder groups	7.1. Understanding and designing for our customer (p. 22-23) 7.2 Keeping the community safe and informed (p. 24-25)		
102-41 Collective bargaining agreements	All Sydney Metro employees are entitled to collective bargaining agreements		
102-42 Identifying and selecting stakeholders	7.2. Keeping the community safe and informed (p. 24-25)		
102-43 Approach to stakeholder engagement	7.2. Keeping the community safe and informed (p. 24-25)		
102-44 Key topics and concerns raised	2. About this report (p.5)		

GRI Standard Disclosures	Location and comment	Boundaries and notes	Omissions
102-45 Entities included in the consolidated financial statements	-		Not applicable as Sydney Metro is a government organisation
102-46 Defining report content and topic Boundaries	2. About this report (p. 5)		
102-47 List of material topics	2. About this report (p. 5)		
102-48 Restatements of information	2. About this report (p. 5)		
8. Environmental custodianship (p. 23)			
102-49 Changes in reporting	2. About this report (p. 5)		
102-50 Reporting period	2. About this report (p. 5)		
102-51 Date of most recent report	30 June 2018		
102-52 Reporting cycle	2. About this report (p. 5)		
102-53 Contact point for questions regarding the report	2. About this report (p. 5)		
102-54 Claims of reporting in accordance with the GRI Standards	2. About this report (p. 5)		
102-55 GRI content index	GRI Standard Content Index (p. 51-55)		
102-56 External assurance	-		No external assurance sought
Material Topics			
GRI Standard			
GRI 303: Water	8.2. Water (p. 37-38)		
GRI 103: Management Approach	8.2. Water (p. 37-38)	Description and boundary: the efficiency with which Sydney Metro uses water during delivery of projects	
303-3 Water withdrawal	8.2. Water (p. 37-38)		No water withdrawal from areas with water stress
GRI 305: Emissions	7.3 Climate resilience and energy (p. 39-40)		
GRI 103: Management Approach	7.3 Climate resilience and energy (p. 39-40)	Description and boundary: the efficiency with which Sydney Metro manages emissions during delivery of projects	

GRI Standard Disclosures	Location and comment	Boundaries and notes	Omissions
	Covered in 8.3 Climate resilience & energy (p. 39-40)		
GRI 307: Environmental Compliance	8.1 Environmental management (p.35)		
	8.1 Environmental management (p.35)	Description and boundary: the efficiency with which Sydney Metro manages environmental compliance	
	8.1 Environmental management (p.35)		
GRI 403: Occupational Health and Safety	9.1 Health, safety & wellbeing (p. 42-44)		
	9.1 Health, safety & wellbeing (p. 42-44)	Description and boundary: the efficiency with which Sydney Metro manages OHS of its construction workforce	
	9.1 Health, safety & wellbeing (p. 42). Sydney Metro has developed and implemented an occupational health and safety management system which has been applied to comply with the NSW Work Health and Safety Act (2011), and NSW Work Health and Safety Regulation (2017)		
	9.1.4 Managing health & safety risks (p. 42-44). Hazard identification, risk assessment, and incident investigation are key elements of the Sydney Metro's WHS assurance system, which are applied to facilitate quantitative risk based decision making during project delivery.		
	9.1.1. Silica dust and tunnelling (p.42)		
	7.3.3 Working with industry and government to drive better health outcomes (p. 30). Sydney Metro has taken a collaborative approach targeting local, national and international communities of practice to explore and identify best practice occupational health performance. Collaboration efforts have lead Sydney Metro to implement an Occupational Health, Hygiene and Wellbeing Standard which is now embedded in tender evaluations and contracts.		
	9.2. Workforce development and industry participation (p. 45) through the implementation of the Sydney Metro Workforce Development and Industry Participation strategy, the skills and capacity of those workers servicing Sydney Metro projects are developed and include critical occupational health and safety knowledge, relevant to the roles and environments in which such persons work.		

GRI Standard Disclosures	Location and comment	Boundaries and notes	Omissions
403-6 Promotion of worker health	7.3. Working with industry and government to drive better health outcomes (p. 30). Sydney Metro recognises that workplaces are settings which significantly influence the physical, mental, economic and social well-being of workers. Therefore as a government client organisation we prioritise workplaces as settings for health promotion and seek to drive such values along the construction supply chain through the implementation of the construction industry's first Health, Hygiene and Wellbeing Standard.		
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	9.1. Silica dust and tunnelling (p. 42)		
403-8 Workers covered by an occupational health and safety management system	Demonstrated Safety Management Systems are a compliance condition for any contractor servicing Australian Government construction projects and is a system administered by the Office of the Federal Safety Commissioner, requiring initial accreditation and 5-yearly reaccreditation - 100 per cent of workers delivering Sydney Metro projects are covered by an occupational work health and safety management system.		
GRI 413: Local Communities			
GRI 103: Management Approach		Description and boundary: how Sydney Metro manages its engagement with local communities impacted by its projects	
413-1 Operations with local community engagement, impact assessments, and development programs	7.1 Understanding and design for our customers (p. 22-23). 7.2. Keeping the community safe and informed (p. 24-25), and 8.1 Environmental management (p.35)		
GRI 416: Customer Health and Safety			
GRI 103: Management Approach		Description and boundary: how Sydney Metro manages the health and safety of its potential customers	
416-1 Assessment of the health and safety impacts of product and service categories	9.1.1.Managing health & safety risk (p. 42) Sydney Metro is governed by the Office of the National Rail Safety Regulator and has strict duties for compliance with the Rail Infrastructure Manager Accreditation system - to ensure within practicable reason the safety of the Sydney Metro Network, assets and operations across the lifecycle.		

Appendix B:

URL index

1. Sydney Metro Northwest Aboriginal Heritage Archaeological Salvage Program Report (2015), <https://www.sydneymetro.info/sites/default/files/document-library/Sydney%20Metro%20Northwest%20Indigenous%20Heritage%20Archaeological%20Salvage%20Program%20Report.pdf>
2. Sydney Metro (2018), Sustainability Report 2017 https://www.sydneymetro.info/sites/default/files/document-library/SydneyMetro_SustainabilityReport2017.pdf
3. Global Reporting Initiative (2018), Global Reporting Initiative Standards <https://www.globalreporting.org/standards>
4. Engineering News-Record (2018), Global Best Projects 2018 Project of the Year and Best Rail: Sydney Metro Northwest SVC Contract <https://www.enr.com/articles/45258-global-best-projects-2018-project-of-the-year-and-best-rail-sydney-metro-northwest-skytrain?v=preview>
5. SocialPinPoint (2018), Transport for NSW – Sydney Metro West <https://www.socialpinpoint.com/project/transport-for-nsw-sydney-metro-west>
6. Sydney Metro (2018), Delivering a Sustainable Railway <https://app.frame.io/f/4e6e5e98-426e-4709-8027-5dea12959c59>
7. Sydney Metro (2018), Metro Minds STEAM Challenge for teachers <https://sydneymetro.info/metro-minds-steam-challenge-teachers>
8. Transport for NSW (2018), Be Truck Aware <https://roadsafety.transport.nsw.gov.au/campaigns/be-truck-aware/index.html>
9. Sydney Metro (2018), Sydney Metro Northwest Construction Compliance Report #10 https://www.sydneymetro.info/sites/default/files/document-library/Sydney_Metro_Northwest_Construction_Compliance_Report_10-October_2017_to_March_2018.pdf
10. Sydney Metro City & Southwest Construction Compliance Report #2 https://www.sydneymetro.info/sites/default/files/document-library/SM_CSW_Construction_Compliance_Report_02_Oct_2017_Mar_2018.pdf
11. Sydney Metro (2018), Industry <https://www.sydneymetro.info/industry>
12. Infrastructure Sustainability Council of Australia (2018), Sydney Metro <https://www.isca.org.au/sydney-metro>
13. Green Building Council of Australia (2018) <https://new.gbca.org.au>
14. SafeWork NSW (2018) <https://www.safework.nsw.gov.au/>
15. Safe Work Australia (2018) <https://www.safeworkaustralia.gov.au/>
16. Safe Work Australia (2018), Virtual Seminar Series <https://www.safeworkaustralia.gov.au/vss>
17. Department of Planning and Environment (2018), Sydney Metro <https://www.planning.nsw.gov.au/Assess-and-Regulate/State-Significant-Projects/Sydney-Metro>
18. Environment Protection Agency NSW (2018) <https://www.epa.nsw.gov.au/>
19. Churchill Trust (2018) Churchill Fellowships Kate Cole www.churchilltrust.com.au/fellows/detail/4105/Kate+Cole
20. Australian Tunnelling Society (2018) <http://www.ats.org.au/>
21. First Solar (2018), Projects: Beryl Solar Farm <http://www.firstsolar.com/en-AU/Resources/Projects/Beryl-Solar-Farm>
22. Office of Environment and Heritage (2016), NSW Climate Change Policy Framework <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf>
23. Australian Energy Market Operator (2018), National Electricity Market <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM>
24. Sydney Metro (2018), Solar system the size of a football field helping deliver a sustainable Sydney Metro <https://www.sydneymetro.info/article/solar-system-size-football-field-helping-deliver-sustainable-sydney-metro>
25. Sydney Metro (2018), Sydney Metro Northwest Planning and Compliance <https://www.sydneymetro.info/northwest/environment-planning>
26. Sydney Metro (2018), Sydney Metro City & Southwest Planning and Compliance <https://www.sydneymetro.info/citysouthwest/environment-planning>
27. Sydney Metro (2016), Construction Environmental Management Framework <https://www.sydneymetro.info/sites/default/files/Construction%20Environmental%20Management%20Framework.pdf>
28. Sydney Metro (2018), Sydney Metro Northwest Construction Compliance Report #10 https://www.sydneymetro.info/sites/default/files/document-library/Sydney_Metro_Northwest_Construction_Compliance_Report_10-October_2017_to_March_2018.pdf
29. Sydney Metro (2018), Sydney Metro City & Southwest Construction Compliance Report #2 https://www.sydneymetro.info/sites/default/files/document-library/SM_CSW_Construction_Compliance_Report_02_Oct_2017_Mar_2018.pdf
30. Northwest Rapid Transit (2018) <http://www.nrt.com.au/>
31. Forest Stewardship Council (2018) <https://au.fsc.org/en-au>
32. Program for the Endorsement of Forest Certification (2018) <https://www.pefc.org/>
33. Office of Environment and Heritage (2016), NSW Climate Change Policy Framework <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf>
34. Transport for NSW (2018), Be Truck Aware <https://roadsafety.transport.nsw.gov.au/campaigns/be-truck-aware/index.html>
35. United Kingdom Health & Safety Executive (2018) <http://www.hse.gov.uk/>
36. NSW Government (2018), NSW Government Action Plan: A ten point commitment to the construction sector <http://www.infrastructure.nsw.gov.au/media/1649/10-point-commitment-to-the-construction-industry-final-002.pdf>
37. British Standard International (2010), BS 8903:2010 Principles and framework for procuring sustainably. Guide <https://shop.bsigroup.com/ProductDetail/?pid=000000000030203003>
38. International Organization for Standardization (2017), ISO 20400:2017 Sustainable procurement – Guidance <https://www.iso.org/standard/63026.html>
39. Social Traders (2018) https://www.socialtraders.com.au/about-social-enterprise/what-is-a-social-enterprise/social-enterprise-definition/?gclid=EAAlQobChMika233ZaC3wlVQRuPCh2JrAvyEAAYAiAAEgl_hfD_BwE
40. Social Traders are a non-for profit organisation that facilitate relationships between social enterprises and business and government buyers
41. Social enterprises are businesses that tackle social problems, improving communities, helping the environment and providing people from socially disadvantaged group's access to employment and training
42. NSW Government (2018), – Transport Administration Amendment (Sydney Metro) Act 2018 <https://legislation.nsw.gov.au/-/view/act/2018/18>



Printed on environmentally responsible paper manufactured using Elemental Chlorine Free (ECF) pulp sourced from certified, well managed forests.

Information in this document has been prepared in good faith and is correct at the time of printing. November 2018.

© Sydney Metro 2018